

A STUDY OF BUYER BEHAVIOUR AND ATTITUDES TOWARDS FUNCTIONAL FOODS AND RELATED MARKETING ACTIVITIES

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ABSTRACT

Consumers have become increasingly concerned with the impact which the foods they eat have on their health. To address this issue, the food industry has developed a variety of foods that make health claims. Eating certain foods can, it is claimed, 'reduce risks of health diseases' or to 'maintain a person's health'. These foods are commonly known in the food industry as Functional Foods (FF).

This study was conducted to examine consumers' attitudes and buying behaviour in relation to FF and how can they be successfully marketed by the industry, with a special focus on regulations and labelling.

Secondary research (literature review) examines the history, development, consumer acceptance and marketing of FF. Primary research explores FF buyer behaviour and attitudes towards these products. Primary research was conducted in two phases. Phase one involved 100 consumer surveys using the street-distribution method. Phase two involved conducting five interviews, four of which involved suppliers from the FF industry. The final interview was conducted with an expert in the FF research area, to triangulate all findings.

This study found that the purchase of FF impacted on age. Trust in FF was significantly different between age groups. Recommendations by health professionals also had an impact. Main influences found included 'healthy option', 'health issues', 'recommended by health professionals' and 'taste'.

Furthermore, there is high potential for the FF industry to improve its marketing of the FF brands with the focus of creating harmonised regulations, clear labelling and educating consumers.

This paper may be of interest to marketing professionals, suppliers and marketers of the FF industry and researchers in this topic area.

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LIST OF ABBREVIATIONS

CSO	Central Statistics Office
EFSA	European Food Safety Authority
EU	European Union
EUFIC	European Food Information Council
EUROPA	This is the name of an organisation, it is not an abbreviation
FDA	Food and Drug Administration
FF	Functional Food(s)
FOSHU	Foods for Specified Health Use
FSAI	Food Safety Authority Ireland
FuFoSE	Functional Food Science in Europe
IFIC	International Food Information Council
PWC	Price Water House Coopers
SMEs	Small to Medium sized Enterprises
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
US	United States

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Chapter 1

INTRODUCTION

1.1 Introduction

Lifestyles in Ireland are changing rapidly with many consumers now embracing new trends in food habits (Dev, 2011). The demand for functional food(s) (FF) is an emerging market and although there is no specific regulatory definition of these foods, which are being marketed as FF, the most commonly used definition states that FF are ‘foods and food components that provide a health benefit beyond basic nutrition’ (Walker-Naylor, *et al.* 2009, p.222).

The popularity of these foods has been immense since the 1980’s when the concept was first introduced in Japan and according to Horton (2010) the growth is set to continue in the future. A recent report by Dev (2011) indicates FF are an important part of an overall healthy lifestyle which includes both a balanced diet and physical activity. Furthermore, there are many obstacles facing the growth and acceptance of the FF sector including the perceived lack of clarity on regulations, including definition, health claims and labelling in this fast emerging yet dynamic sector, especially in European countries (EUFIC, 2006). It is clear there are hundreds of FF brands available in the market and new products added regularly. The researcher contends there is no comprehensive list of FF products as they are spread across all food categories including dairy, bakery and cereals, confectionery and soft drinks (Tuohy, *et al.* 2009). Additionally, not only are larger retailers including Tesco, Dunnes Stores, and Supervalu stocking these products, but smaller convenience stores such as Spar, Centra and specific health food stores can also be seen to stock a vast range of these brands indicating that these products are becoming more mainstreamed.

1.2 Research Objectives

The objective of this study is to investigate consumer buying behaviour and associated marketing activities of FF. An integral component of this will be to examine the extent of information given on food labels and the related effects on consumers’ purchasing behaviour.

Additionally, the researcher will explore factors influencing the purchase of FF, with variables such as trust, price or product quality.

1.3 Researcher's Reasons for Interest in the Subject Area

The researcher's interest lies in key factors that influence consumers' purchases of FF over non FF. Currently, there is little in published literature about consumer attitudes to FF (Lalor *et al.* 2011) and the majority of research comes from a food science perspective, therefore the researcher highlighted an opportunity in the research of the marketing and consumer buying behaviour of FF. Additionally, the researcher is interested to investigate consumer and industry views towards labelling and regulations of FF.

1.4 Chapter Outline

Introduction: The reader is introduced to the concept of FF and the manner in which the researcher is exploring relevant information.

Literature Review: Secondary research surrounding FF, addressing issues such as definitions, history and origin, regulations and legislations, labelling, proposed benefits and marketing is presented.

Methodology: Primary research approaches are outlined. Additionally, attention is drawn to how information gathered will be managed, executed and analysed.

Findings and Analysis: The outcome of the primary research is presented in story format, using results gathered through questionnaire and interviews. Primary research findings are compared with secondary research findings. Both are illustrated through reporting, figures and tables.

Conclusions/Recommendations: The research as a whole is summarised, highlighting recommendations found by the researcher, drawing attention to the overall experience of researching FF.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Consumers have become increasingly concerned with the foods they eat and the impact this has on their health. To address this issue, the food industry has developed a variety of foods that make health claims such as ‘reduce risks of health diseases’ or to ‘maintain a person’s health’. These foods are commonly known as FF. The literature review seeks to examine aspects of consumer buying behaviour and marketing in the FF industry. Firstly, an insight into the development and growth of the FF sector including definitions, types and categories, trends and the consumer acceptance of FF is presented. Additionally, possible implications for marketers which draw attention to the utilisation of marketing tools and techniques and barriers that may inhibit potential growth of the FF sector are evaluated.

2.2 History and Development of FF

For centuries, people have become increasingly aware of their health and believe food and herbs have health-giving and curative properties. According to Sheehy and Morrissey (1998) in the 1990’s, people turned to drugs to treat diseases. However, there has been a shift in this trend as people are now becoming more knowledgeable on health benefits occurring naturally from foods, and that which is added to make a food healthy. Consumer behaviour and patterns are forever evolving across national boundaries due to the increasing globalisation and presence of the food, beverages and retail industry and increasingly consumers are seeking meals that match their lifestyles. FF are ‘foods or dietary components that may provide a health benefit beyond basic nutrition’ (International Food Information Council (IFIC), 2009). More and more consumers are beginning to take greater control of general health and health issues through their food choices, with the knowledge that some foods can provide specific health benefits. Links are being recognised between diet and the prevention of diseases such as kidney disease, cancer and diabetes (Rodgers, 2004). As a result, apart from medication prescribed by medical professionals, there has been an increase of health related products including conventional FF and Nutraceuticals, for example milk fortified with vitamins, on the food market. Rodgers (2004: p.149) describes Nutraceutical as

‘products produced from foods but sold in powders, pills and other forms not traditionally associated with food’. Examples of FF can range from soft drinks to breads, cereals, meats and even components found in foods such as fruit and vegetables.

The term FF first originated in Japan in the 1980’s to highlight foods which are fortified with special constituents that possess advantageous physiological effects (Siro *et al.* 2008, Stanton *et al.* 2005 and Hardy, 2000). The demand for these products was recognised, as the population age and medical expenses were increasing. In addition, the concept was first prompted by Japanese scientists in 1984 who ‘studied the relationships between nutrition, sensory satisfaction, fortification and modulation of physiological systems’ (Siro *et al.* 2008: p. 457). Furthermore, in 1991, this interest prompted the Ministry of Health, in Japan, to introduce rules and regulations for approval of specific health-related claims made by food manufacturers, which they called Food for Specific Health Uses (FOSHU) (Siro *et al.* 2008 and Burdock *et al.* 2006). Moreover, Roberfroid (2002) highlights that the FF concept is mainly a scientific concept that serves to stimulate research and the development of new products. However, more recently it has become more focused on helping consumers.

There is no doubt that Japan has influenced countries worldwide, especially countries across Western Europe and the United States (US). They have taken an immense interest in this sector. The growth of these foods in this sector is phenomenal despite the barriers such as heavy regulations and the current economic situation that many countries find themselves in today (see appendix two for overview of growth of FF 2002-2012). It is evident from the literature that many authors including Siro *et al.* (2008) and Gray, *et al.* (2003) argue that the typical FF consumers are females, usually well-educated with higher income levels. This presents a huge opportunity for the communication of FF sectors and establishes the possible purchase stimulating variables for other target markets.

2.3 Definitions of FF

The term FF is relatively recent and it is a term with which many consumers may not be familiar. Siro *et al.* (2008) highlighted that scientists identified a need for a term to describe

the ever increasing number of foods being identified as 'healthful'. In addition, Hollingsworth (2000, p.53) states the 'definition is open to debate'. Many national authorities, academic and regulatory bodies and the industry itself have tried to define the term FF ranging from the simple to the complex (Siro *et al.* 2008). From reading numerous articles around the subject, the researcher has found this to be true. To date, there is no one unitary accepted definition for the term FF. Furthermore, Siro *et al.* (2008) outline the lack of a legislative definition which draws a thin line between conventional foods and FF. In essence, FF needs to be differentiated from conventional foods in order to evolve and grow. Gray *et al.* (2003, p.213) describe FF as 'any food or food ingredient that has a positive impact on an individual's health, physical performance or state of mind, in addition to its nutritive value'. While Niva (2007: p.385), outlines that 'typically, a food marketed as functional contains added technologically developed ingredients with a specific health benefit'. The Institution of Medicine defines FF as 'those foods that encompass potentially healthful products including any modified food or ingredient that may provide a health benefit beyond the traditional nutrients it contains'. In addition, the European Commission's Concerted Action on FF Science in Europe (FuFoSE), cited by Siro *et al.* (2008: p.457) define FF as a food product that

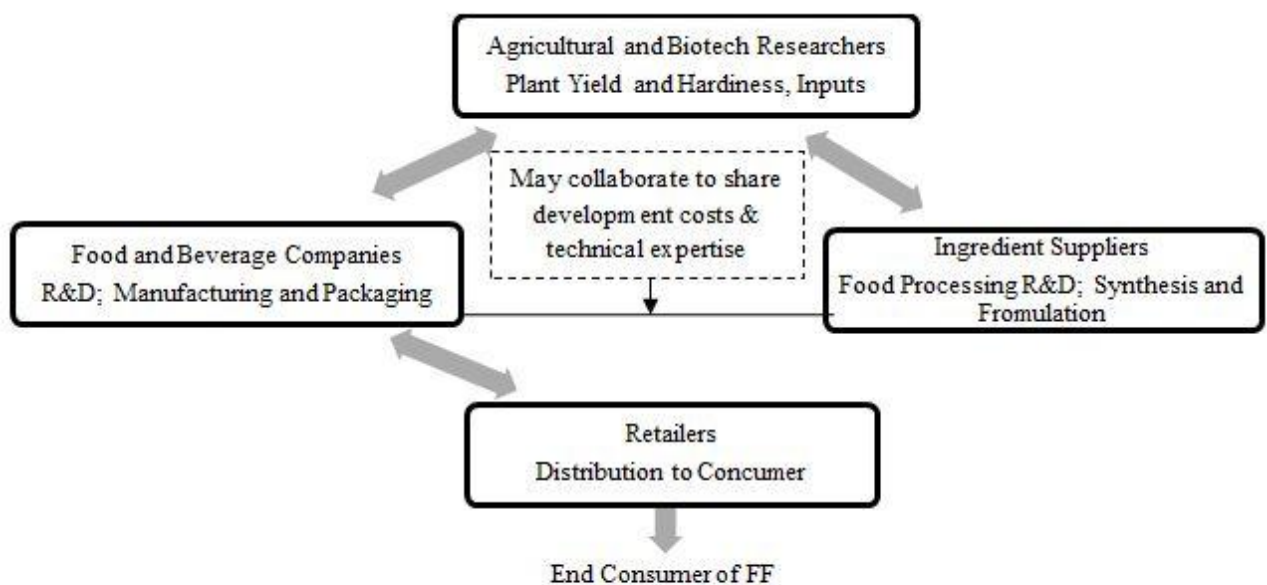
'can only be considered functional if together with the basic nutritional impact it has beneficial effects on one or more functions of the human organism thus either improving the general and physical conditions or/and decreasing the risk of the evolution of diseases'.

Nevertheless, definitions may range from simple and direct to more complex and scientific. Without doubt, that they all possess similar characteristics and traits revealing that these foods help to provide a health benefit, lower the risk of certain diseases, or affect a particular body process (Gray *et al.* 2003 and Niva 2007). The researcher believes that for the purpose of this report it is important to identify a definition that may eliminate confusion and thus the researcher has selected the following definition to best explain FF. 'FF and drinks that provide benefits beyond basic nutrition by way of added components and may prevent disease or promote health' (Horton, 2010: p.17) and are 'similar in appearance to conventional foods, is consumed as part of a usual diet, and has demonstrated physiological benefits and/or reduces the risk of chronic disease beyond basic nutritional functions' (Farmworth, 1997). Therefore, this report is based upon a definition of FF by which ingredients with an additional health-value have been added to foods.

2.4 Types of Suppliers and Examples of FF

Manufacturers and suppliers of FF have to adhere to strict requirements of scientific verification before launching a FF product onto the market. Menrad (2003), outlines that suppliers need to present statistically validated data from different models including retrospective (the study of a relationship between one phenomenon and another); prospective (expected or expecting something in the future); epidemiological studies and intervention studies (a comparison of an outcome of two groups subjected to different dietary regimes) on humans. Indeed, these are subject to the country where FF are launched, as different regulations apply. Small to medium sized enterprises (SMEs) according to Menrad (2003), seem to lack the know-how and resources for their own research and development, as well as costs for advertising activities to launch products in the FF market. As a result, they cannot survive very long in the market (Siro, *et al.* 2008) and therefore the advantages lie with the multinational food companies. However, Tuohy *et al.* (2009) outline that private-label brands including Aldi and Lidl are beginning to gain market share and survive longer in the market in the current economy. This is mainly due to the decrease in disposable income for many consumers and private-label brands are generally priced lower than multinational brands. Moreover, SMEs are sustaining their presence by creating niche markets generally in the more mature markets for instance, the dairy sector (Tuohy, 2009 and Siro, *et al.* 2008). A report by PriceWaterHouseCoppers (PWC) (2009) shows the FF supply chain (figure 2.1).

Figure 2.1: FF Supply Chain



(Source Adapted from: Tuohy *et al.*, 2009: p.7)

Large multinationals, can often be seen to collaborate with specialised ingredient makers already established in the FF market. Yet it is more evident with the growth of this industry that smaller participants are successfully creating and defending themselves in the market by creating niche markets. According to a recent report by Tuohy, *et al.* (2009) FF are used, distributed and regulated differently from that of medical foods and drugs. It is important to distinguish between these for this report. The following table compares FF, medical foods and prescription drugs.

Table 2.1: FF, Medical Foods and Prescription Drugs

Difference	FF's	MEDICAL FOODS	PRESCRIPTION DRUGS
Uses	Key areas for FF include energy enhancement; weight management; bolster gut, bone or heart health; disease risk reduction; memory improvement.	These are mainly for dietary management of a disease or condition with distinctive nutritional requirements. For example difficulty swallowing, loss of appetite or nutrition repletion post-surgery.	These are for treatment of disease, symptom or condition.
Method of obtainment and amount consumed	No prescription or supervision is needed and the consumer selects preference. Amount consumed is to the consumer desire.	Can be consumed under medical supervision. Amount consumed is only when the consumer 'needs' it.	Has to be prescribed by health provider. Amount is as prescribed by health provider.
Distribution channels	Can be bought in supermarkets, drugstores, online and any major retailer.	Can be obtained from hospitals, pharmacies, drug-stores and online.	Only obtained from pharmacies and hospitals.
Regulatory body	No specific body, but is considered food and is therefore subject to Food and Drug Administration (FDA) regulation in the US or regulatory body of that region. Please see table 2 below. (FDA regulates any specific health claims that might be made in the US)	No additional FDA review or approval needed but must abide by regulations concerning foods. For example labelling. (FDA regulates any specific health claims that might be made in the US)	FDA approval needed in a review process.

(Source Adapted from: Tuohy, *et al.* 2009, PWC report, p.6)

However, this research will solely concentrate on FF. The above table helps eliminate any confusion and provides descriptions of all foods classified in the FF industry.

FF can be seen across almost every category of the food industry. All store shelves, in large and small retail stores including Tesco, Dunnes Stores, Supervalu, Centra, Mace and all the health-food shops, can be seen to stock some of the favoured types of FF. There are numerous types of FF across every category and a comprehensive list of all types and suppliers of FF is not available at this point within Ireland. To get a glimpse of just how many products there are, more than 1,700 FF products launched in Japan alone, between 1988 through to 1998 (Siro, *et al.* 2008). However, authors including Siro, *et al.* (2008), Rodgers (2004) and Urala and Lahteenmaki (2003) have listed a few which include functional drinks, functional breads, functional cereals, functional meats and spreads. According to the report completed by PWC, food can be classified into the following categories and benefits:

Table 2.2: Classification by Category, Benefit and Type

FF by Category	FF by Benefit	FF by Type
Soft Drinks	Energy	Fortified Products
Dairy	Heart Health	Enriched products
Bakery and Cereals	Bone Health	Altered Products
Confectionery & Savoury Snacks	Gut Health	Enhanced Commodities

(Source: Tuohy, *et al.* 2009 and Lalor, *et al.* 2009)

The soft drinks and dairy groups, however, dominate in the food category sector. Key players, according to the report, include PepsiCo's 'Quaker' and 'Gatorade'; Coca-Cola's 'Vitamin Water'; General Mills 'Cheerios' and 'Yoplait'; Kellogg's 'Special K'; Krafts 'Capri Sun' and 'Balance Bar'; Nestlé's 'Nesquik' and 'PowerBar'; Danone's 'Activia' and 'Essensis'; Unilever's 'Slim-Fast' and Yakult Honsha 'Yakult 400'. The majority are from the multinationals rather than the SME sectors.

2.5 FF Marketing Mix and Influencing Factors

The FF marketing mix in this research includes product, promotion, people/consumers and price. Place was not considered for the purpose of this research. As stated before, there are vast numbers of FF products being launched on the market every year (for more information on products see sections 2.2/2.3). It is also believed, positioning of FF are in the early stages of the lifecycle, as many consumers are sceptical of trusting the FF message or health claims (DaCosta-e-Silva *et al.* 2007). Some FF consumers say that they would trust big food companies rather than the smaller ones as they believe they are ‘financially stable to conduct research’ and therefore claims appear more credible (Lalor *et al.* 2011). However, other consumers believe that they cannot trust the big food companies and maintain they are using claims as ‘marketing gimmicks’. Therefore, where can trust be placed and who do consumers turn to for their information to purchase these products? Lalor, *et al.* (2011), Walker-Naylor *et al.* (2009), Siro *et al.* (2008) and L’Abbe *et al.* (2008) highlighted consumers’ sources of information on FF include, health professional/doctor, regulatory bodies, online sources, family/friends, media and other reputable authorities. However, scepticism remains over trust in FF products and health claims (Lalor *et al.* 2011).

There are numerous factors that are said to influence consumers’ buying behaviour of FF. According to a report by DaCosta e Silva, *et al.* (2007) the most important reasons for buying FF from a consumer’s perspective are to prevent diseases, help maintain health and short-term wellness. Additionally, according to past literature, taste, price, familiarity with brand, trustworthiness, older populations, mothers with young children, presence of an ill family member, consumer knowledge, education and income levels are also said to be influencing factors leading to the purchase of FF (Lalor *et al.* 2011, Kenny 2011, Siro *et al.* 2008, Teratanavat and Hooker 2006, Verbeke 2004 and Gray *et al.* 2003).

The description of a typical FF consumer, classified by different socio-demographic parameters in the US and in Europe, is defined as female, aged 35 – 60, with a high level of education and a high income (Siro *et al.* 2008, Teratanavat and Hooker 2006, Gray, *et al.* 2003, Anttolainen *et al.* 2001 and Childs, 1997). According to the IFIC (2000), cited by Siro, *et al.* (2008), the typical consumer is female, aged 45-74 and Gilbert (1997) suggests that they are aged 55+. However, they both agree on the consumer being college educated, yet mention nothing about level of income. Moreover, Hilliam (1996), cited by Verbecke

(2004:p47) states that ‘purchasing of FF in Europe is biased towards higher socio-economic groups, reflecting a higher willingness or ability to pay a price premium, as well as better knowledge and higher awareness’. Furthermore, the report by Agriculture and Agri-Food (2009) outlines that ‘demographic characteristics of consumers play a minor role in consumer acceptance of FF. Indeed, the majority lie with a female, aged 35-60 and in the well-educated category. It is hypothesised that individuals in the older age categories invest more in their health and are more likely to have health conditions than the younger generation, due to probable forms of illness (Gunzelmann *et al.* 2006). Mothers with young children and consumers who are shopping for a relation with an illness tend to be more aware of FF (Lalor *et al.* 2011). Indeed Lalor *et al.* (2011:p.1) also highlight that ‘many individuals prefer a total diet approach, rather than focusing on individual health foods’.

In the PWC report, Tuohy, *et al.* (2009:p.8) states that the FF brands, mainly private-labels, ‘tend to gain unit market share during recessionary times because of their appeal to price-sensitive consumers looking to pay less for comparable items’. Supporting this IFIC (2000) and Gilbert (1997) suggest that FF are not price-sensitive and the typical consumer does not need to be in the higher income bracket, suggesting that FF are priced fairly. FF vary in prices and as a result of the current downturn the private-label brands are beginning to gain market share and enter more new products into the market. Although a number of previous empirical studies have identified FF, with a premium price, as a major influence on consumer acceptance and buying intention, nowadays price may be viewed as a secondary factor for all types of consumers. It is also important to recognise that FF products have different target markets and functions, thus prices vary according to product.

2.6 Past Trends and Current Developments

In the 1980’s, following a trend observed in consumer demand, the food industry introduced a new category called FF. This interest and trend has been fuelled by increased media attention and an increasing number of consumers taking greater control of their own diet and health (L’Abbe *et al.* 2008). A number of factors and trends are responsible for changing consumer attitudes toward foods and reshaping the FF industry. These include an ‘aging population; increased health care costs; increase in population i.e. ‘baby boom’; consumers

desire to enhance personal health; change in consumer awareness and expectations; advancing scientific evidence that diet can alter disease prevalence and progression; advances in food science and technology, and changes in food regulations' (Agriculture and Agri-Food, 2009 and Hollingsworth, 2003). Recent trends in consumer behaviour towards the FF sector are down to two main reasons. Firstly, current population tends to be living longer and secondly the ever increasing cost of health-care (Siro *et al.* 2008 and Hollingsworth, 2003). Furthermore, consumers are making a connection between eating healthy food to extend life expectancy and improve the overall quality of life (Hollingsworth, 2003).

When developing a successful FF product or brand, there are important factors that manufacturers should take into account from the outset. These include identifying consumer needs, and opportunities in sciences and technology (Siro, *et al.* 2008 and Ares and Gambaro, 2007). It is important to note that the main purpose of these foods is not solely to satisfy hunger but to provide a health benefit or reduce risk and prevention of disease (Wansink, 2005).

Sloan (2010) outlines some of the recent top FF trends which include retro-health (foods with low calories), naturally functional (high in nutrients and vitamins), functional fill-ins (consumers desire healthier snack options between meals), daily dynamics (consumers are influenced by FF that claim to serve as effective life style aids e.g. energy drinks) and finally foodservice (restaurants are now beginning to include healthier options on their menus – something that consumers are craving). Furthermore, according to a report by Euromonitor International (2010), Ireland is said to have great opportunities in the functional drinks market with brands such as Lucozade and Coca-cola having a dominant position in Ireland and the United Kingdom (UK) but little presence in other counties.

2.7 Consumer Demand and Acceptance of FF

Health-conscious consumers are driving the demand for products that aim to promote better health, increase longevity and prevent the onset of chronic diseases (Tuohy, 2009). According to a recent report, Horton (2010, p.9) states that 'global consumption of FF has

increased by a compound annual rate of over 6% between 2003 and 2008' and is predicted to continue to grow over the next three years. Consumers are continuously influencing and fueling the changes and growth of the FF sector. Gray, *et al.* (2003, p.213) state that 'changing consumer lifestyles have had a significant impact upon demand for foods which are perceived as healthy and nutritious'. Consumers have emerged in this sector demanding not only commercially available and convenient food products but also those foods that are adapted to help manage their diet and health i.e. value-added products. Therefore, the increase in FF is mainly down to the health claims that manufacturers are producing and communicating to consumers. These declare that FF improve the quality of life, have specific health benefits and can be used to self-medicate (Horton, 2010, Walker-Naylor *et al.* 2009 and Siro *et al.* 2008).

There are numerous factors relating to consumers' acceptance of FF. Moreover, Siro *et al.* (2008) suggest that consumers rely on a number of 'inter-relating factors' during the time of their acceptance. These include level of concern about general health and different medical conditions, the belief that it is possible to influence one's own health and awareness and the knowledge of foods/ingredients that are believed to be beneficial. Moreover, many of these factors do not present a strong presence in today's society, as consumers generally do not have the necessary background knowledge to evaluate the evidence-based functional claims that manufacturers promote. Thus, they begin to relate factors to their own personal health unless they or someone they know is suffering from a disease or nutritional problem (Bech-Larsen and Scholderer 2007, Verbeke, 2005 and Urala 2005). It is then they may start to relate the health issue as a factor when consuming foods. Furthermore, consumers prefer if health food claims emphasise the positive contributions to life, known as 'life marketing', rather than food claims that focus on disease, known as 'death marketing' (Siro *et al.* 2008). On the other hand, Levin, Schneidner and Gaeth (1998), cited by Siro *et al.* (2008) argue that sometimes the negative information or 'death marketing' is more effective. It can be more informative, attracting more attention and targeting consumers with in-depth information in contrast to the positive information of 'life marketing'.

In addition, Siro *et al.* (2008) cite sensory qualities such as taste as another attribute that consumers view as important when purchasing a food product and should not be an inhibiting

factor because they are FF. However, Verbeke (2006) argues that consumers' willingness to compromise on the taste of FF for health is a 'highly speculative and risky strategic option'. Manufacturers, therefore, need to ensure that taste and other aspects of traditional foods are not compromised when producing FF as it may affect consumer willingness to purchase the product. Furthermore, foods are still classified in consumers' minds as 'good' or 'bad'. Their health-benefits are still closely associated with natural and unprocessed products thus they view FF as artificially manufactured products. Consumers do not see the introduction of healthy ingredients within these foods as genuine (Niva, 2007). Verbeke, (2008) also reports that consumers weigh different factors when making buying decisions including not only health, nutrition and taste but also price and convenience.

2.7.1 New Product Development of FF

Horska and Sparke (2007) outline three variables that affect the rate of diffusion and acceptance of FF products in the market:

1. The degree of perceived newness;
2. The perceived attributes of the innovation;
3. The method used to communicate the idea.

Each of the variables will have a bearing on consumer reaction and the time needed to accept the product. Therefore, the more incrementally innovative, the shorter the time to diffuse and the more innovative the product, the longer and more difficult it becomes for consumer acceptance. Therefore, communicating and educating consumers are key when launching FF products onto the market. Horska and Sparke (2007) also argue that companies need to improve targeting and marketing to differentiated consumers. For instance, they need to ask whether customers are enlightened or hesitating, convinced or mistrustful, health-oriented or cost-conscious, as these are the main reasons why many companies fail in the market. A study completed by Armstrong *et al.* (2005: p.715) relates to the above by identifying that there is a 'general lack of awareness of the health-enhancing food concept and the level of (largely proven) health benefits of such products, which is a barrier to their wider adoption' and acceptance of these products. However, it is also argued by Walker-Naylor *et al.* (2009) and Siro *et al.* (2008) that the growth of these consumer foods may be down to the way in which marketers and public bodies such as the media are encouraging and influencing the adoption of these FF.

In essence, it is the tools and techniques used to launch and promote a FF along with the culture and the beliefs of each consumer in each individual country that determines whether the FF is accepted or not. As a result, consumer acceptance of FF cannot be taken for granted and therefore it is up to the marketers in each country to identify the needs and attitudes of their target consumers. Additionally, the regulations and legislations around some of the specific-health claims, supported evidentiary documentation and rules regarding labelling issues need to be addressed, as each country differs. This therefore, can lead to confusion among consumers and decrease of consumer acceptance if they do not trust or have good knowledge of FF rules.

2.8 Barriers to the Marketing of FF

Even with rapid growth in the FF sector, there are on-going factors that impact and affect such growth. Barriers include disputes over regulations, legislation and conflicting claims about the perceived beneficial health claims of such FF (Walker-Naylor, 2009). These barriers not only impact on the growth of existing FF products in the marketplace but also hinder the launch of new products in the FF sector. According to Childs (1994), cited by Bogue and Ryan (2000, p.12), ‘the greatest barrier to FF market entry is government regulations in relation to product approval and product claims’. This is still true ten years on. Therefore, foods that have added nutritional ingredients by law need to have their health-claims tested before launching that product onto the market and communicating health-claims to potential consumers.

2.8.1 FF Regulations in Japan, US and Europe

Japan, where the term FF originated, seems to be leading the race in both FF products and regulations related to this area, leading to the establishment of FOSHU. According to a recent report by the European Food Information Council (EUFIC) (2006), foods identified as FOSHU must be approved by the Minister of Health and Welfare after the submission of comprehensive, science-based evidence to support claims made by these food manufacturers. Only then are they allowed to use the FOSHU brand on the food labelling. The Japanese Ministry of Health and Welfare have highlighted three conditions that FF must satisfy, before being regulated. Firstly, they have to be foods, not capsules or tablets, with naturally

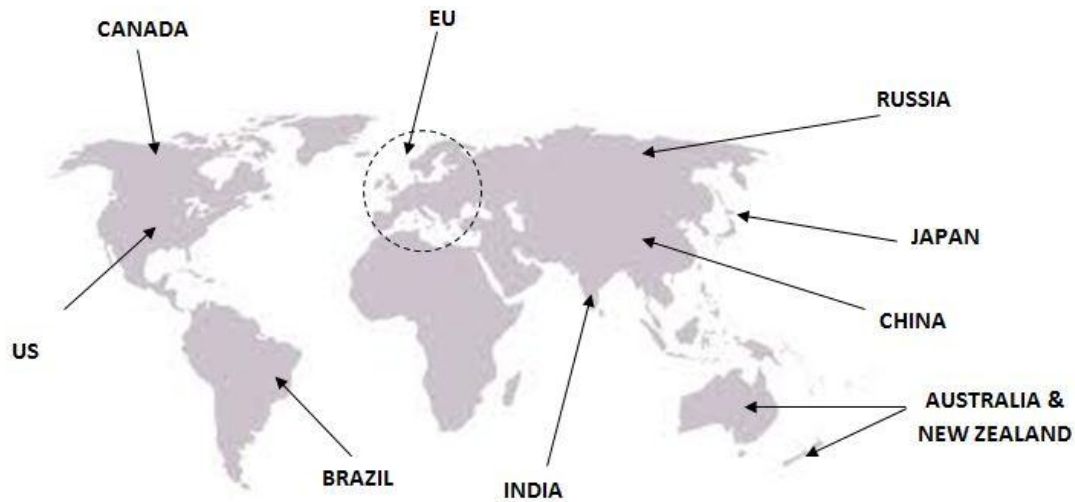
occurring ingredients. Secondly, they should be consumed as part of the daily diet and thirdly they should have a particular function when ingested into the body (Goldberg, 1994, cited by Sheehy and Morrissey, 1998).

In the US, health claims are authorised by the FDA on the basis of ‘the totality of publicly available scientific evidence and where there is significant scientific agreement amongst qualified experts that the claims are supported by the evidence’ (EUFIC, 2006).

Yet, regulations are still unclear in European countries. Within European legislation, the ‘concept’ of FF is considered rather than specific food categories. FF are perceived as foods developed specifically to promote health or reduce the risk of disease (Siro, *et al.* 2008 and EUFIC, 2006). According to EUFIC (2006), there is ‘no harmonised legislation on health claims’. This means it is up to each member state to set the rules, however, under the existing regulatory framework, the communication of messages that reference the reduction or prevention of disease is prohibited. In 2006, EUROPA the regulation on nutrition and health claims made for foods was adopted by the council and parliament of the European Union (EU). Thus, for the first time it harmonised rules across the EU for the use of nutrition claims such as FF claims including ‘low fat’, ‘high fibre’ or ‘reducing blood cholesterol’. These regulations foresee implementing measures to ensure that any claim made for foods through labelling, presentation or marketing within the EU is clear, accurate and based on evidence accepted by the whole scientific community (www.europa.eu). This regulation will eliminate any product which bears labelling that may mislead the consumer in any way and should enhance the consumer’s ability to make an informed and meaningful choice. Furthermore, this regulation respects fair competition and protects innovation in the area of food and allows food companies making claims on FF to use the same claims on its products everywhere in EU (www.europa.eu). At the same time, each member state must promote fair trade and encourage academic research in the food industry (EUFIC, 2006). In addition, the Food Safety Authority Ireland (FSAI) (2006) reported that ‘many food companies are investing considerable resources in developing FF products but are largely unaware of the significant regulatory hurdles that must be overcome before a new food product can be placed on the market’. This area of regulation, in an EU context, needs to be addressed in order for sustainable growth through consumer acceptance and safety in this area. New legislation in the EU is currently being assessed to try and harmonise all rules by 2012, however in the meantime this area is governed by existing food legislation based on the laws and rules

within each of the countries (FSAI, 2006). Additionally, Horton (2010) and Agriculture and Agri-Food (2009) highlighted key countries and their regulatory bodies.

Figure 2.2: Map of regions and Regulatory Bodies Governing Health Claims in Key Regions



Functional Food Regulation By Country			
Country	Known as:	Governed by:	Implemented in:
EU	Article 13 Health Claim Legislation	European Food Safety Authority (EFSA)	2007
Russia	Biologically active Food Supplements	Ministry of Health & Social Development	1997
Canada	Natural Health Products/ Health Canada	Food and Drugs Authority	2004
US	Dietary Supplements	Food and Drugs Administration (FDA)	1994
India	Regulation: Food Safety and Standards Act	Food Safety and Standards Act	2006
Australia & New Zealand	Complementary Medicine	Department of health and Ageing	1991
Japan	FOSHU	Japan Health and Nutrition Food Association (Ministry of Health)	1991
China	-	State Food and Drug Administration	2003
Brazil	-	National Health Surveillance Agency	1999

(Source Adapted from: Horton, 2010 and Agriculture and Agri-Food, 2009)

2.9 Possible Implications for Marketers of FF

According to Walker-Naylor, *et al.* (2009, p.229), ‘marketers do not have control over all the information available to the consumers regarding their FF products and ingredients’. Two main challenges are faced by manufacturers when marketing FF. Firstly, many consumers are

unlikely to be very health conscious and secondly many consumers have conflicting opinions about the validity of FF health claims made by manufacturers and marketers which at times are heavily covered and influenced by the media (Walker-Naylor, *et al*, 2009 and Wansink, 2005).

FF are often wrongly perceived in the consumers' minds as new foods, enhanced with added nutritional characteristics. Thus can be intimidating and some consumers refuse to adopt to these new foods because of 'emotion, fear or unfounded beliefs' (Wansink, 2005). Wansink also argues that marketers who have a better understanding of consumer buyer behaviour will allow for better marketing decisions which in turn will lead to an increased FF adoption and effective marketing of nutrition. In addition, Horska and Sparke (2007) and Wansink (2005) argue that the targeting and marketing of FF needs to be segmented. One strategy does not work for all (see section 2.5 for typical FF consumer). Marketers need to remember that every country differs and each consumer has different needs and wants. Due to the rapid growth and success of FF, manufacturers suppliers and marketers have had to search for new ways to deliver 'differentiated health benefits and drive profitability' of FF (Horton, 2010, p.100). Wansink (2005) agrees by outlining that marketers need to become more effective at educating consumers about advances in FF in order to sustain the growth and acceptance of this sector in the food industry.

Furthermore, Horton (2010) outlines some of the most successful marketing strategies that are used by FF marketers. These include the introduction of new claims and new delivery methods for ingredients to connect with the consumer and make claims clear, specific and benefit-focused. As a result in this competitive market, it is important for the marketers of FF to use the most effective marketing tools and channels to best inform consumers and drive their message. Armstrong *et al.* (2005: p.716) state that 'the challenges rests in ensuring that the promotional tools utilised are strictly regulated, to safeguard the consumer from ambiguous information (National Consumer Council, 2001) and to be perceived as credible sources of information by consumers'. In addition, Lalor and Wall (2010) agree that it is imperative to reach consensus regarding the level of scientific evidence required to approve a health claim in order to reduce the level of confusion and concern over FF products and safeguard consumers from being misled. Armstrong *et al.* (2005) also argue that there is a

general lack of awareness and belief in health-enhancing foods and outline that a balance needs to be struck between the nature and extent of information provided by the government to consumers; the nature of information provided by commercial enterprises and the methodology for possible government validation of the health claims made by commercial companies, as these are complex and require a marketing-oriented approach, in order to increase the overall awareness of consumers regarding FF.

2.10 Conclusion

The subject of FF is truly a broad area. There is no absolute definition or exhaustive list of suppliers and extensive range of products being presented to consumers. This area is growing rapidly and presents manufacturers and marketers with many opportunities. Not only does the definition of FF vary across countries, but these markets present different regulatory systems governing FF products. As a result, careful analysis is essential for the success of FF entering the market in the future.

Furthermore, many factors have contributed to the growth of the FF supply, acceptance and consumption, including benefits of the products i.e. the greater belief that these foods give longer life expectancy; reduce the risk of diseases, and the information manufacturers are presenting to FF consumers on their labelling. However, in line with this there are many factors holding this sector back from ‘exploding’. These include uncertainty around legislation, consumers’ trust of labels information and also competition from pure organic products, free from any additional claims. Furthermore, markets for this category show intense competition and in order to survive manufacturers need to carefully plan launches and base key decisions around consumer needs, wants and current trends. This competitive industry suffers from lack of consumer information and understanding and vice versa, which can lead to poor market acceptance (Verbeke, 2005).

It is the researcher’s belief that only when these issues are resolved, the FF sector will then see its true potential within the marketplace.

Chapter 3

METHODOLOGY

3.1 Introduction

This chapter describes and justifies the primary research methods adopted to collect information about consumer attitudes, influences towards buyer behaviour and the marketing activities in the FF sector.

3.2 Primary Research Objectives

Research Question: to explore consumer attitudes and buyer behaviour of FF and marketing activities of suppliers in the FF sector.

Research Sub-Objectives:

1. To identify characteristics of a typical FF consumer.
2. To determine awareness levels among consumers of FF.
3. To explore the perceptions towards FF.
4. To identify factors which influence consumers' purchase of FF products.
5. To explore attitudes of consumers' and suppliers towards regulations of FF.
6. To compare a FF expert's opinion of the data collected.
7. To suggest recommendations for promoting FF products.

3.3 Data Collection Methods

Information for this study has been collected through both descriptive and exploratory measures. The researcher believes it's vital to use both, as Creswell (2003, p.17) states 'multiple forms of data draw on all possibilities' reducing the chance of leaving out valuable information. Descriptive research, in the form of a survey, helped the researcher to understand the information obtained, while exploratory research, in the form of in-depth interviews were used to gain insight and understanding of the issues (Malhotra, 2010).

3.3.1 Stage One – Descriptive Research

The *first stage* consisted of survey research of 100 consumers. The questions were designed around the research objectives. A well designed survey is an invaluable tool in gathering the necessary information and enables large scale collection of data with minimal input required from the person distributing them (Malhotra, 2010). It also eliminates bias from the research and is a time and cost-effective method. The researcher decided to conduct personal survey research, due to its reliable results and its relative simplicity of coding, analysis and interpretation of data collected (Malhotra, 2010).

Surveys were administered through a face-to-face street method. These had a higher response rate than mail, e-mail or telephone methods and the researcher was able to reduce misinterpretation of questions by aiding respondents, thus limiting errors (Saunders *et al.* 2007). Mail and telephone methods were not possible due to lack of access to contacts databases.

3.3.2 Stage Two – Exploratory Research

The *second stage* consisted of semi-structured, in-depth interviews. The researcher chose interviews over focus group, as some of the information given may be sensitive, and often some views may be over-shadowed by the empowerment of others. Interviews allow responses to be directly linked to the appropriate respondent (Wright *et al.* 2000). As all respondents were in competition with each other it would be unethical to complete focus groups research.

Interviews were conducted face-to-face or via telephone, depending on the availability and location of the interviewee.

3.4 Measurement Techniques

Data collection methods were pilot-tested to minimise response errors (Malhotra, 2010). Pilot-tests for surveys were completed with a member from each of the age categories in the questionnaire and interviews with members of the food industry.

3.4.1 Descriptive Research: Consumer Questionnaire

Questionnaires were chosen as the collection-tool for stage one. Due to the surveying method (street-survey) the researcher designed the questionnaire to be short and attractive, as lengthy questionnaires have lower response rates (Crask, *et al.* 1995).

Question Design: combinations of scales were used to gather different levels of information.

Questions one to six are concerned with *objective one*. They are general in nature, easy to answer and seek to uncover general demographics of typical FF consumers. Questions one, three and five are nominal multichotomous scales where the respondent has a number of answers to choose from. Question two is a nominal dichotomous, two-answer scale. Question four is a ratio scale, as zero is meaningful and question six is an ordinal scale and ranks the highest level of education attained by respondents. Question one age categories were sourced from CSO (2006) figures and adapted to exclude respondents who may be under 18. Question three categories were obtained from Perner (2008) and adapted by the researcher to aid answering respondent's household status profile. Question five is to indicate if social grade has an impact on buyer behaviour regarding FF.

Question seven is a nominal dichotomous scale with the aim of determining FF awareness levels (*objective two*). An FF definition is given here to encourage respondents to continue with the survey.

Question eight (*objective two*), is an ordinal scale used to identify frequency purchasing behaviour of consumers. Categories are identified from literature (Tuohy *et al.* 2009).

Question nine, which is concerned with *objective three*, was designed to explore perceptions of consumers towards FF products and uses a seven point Likert scale. This could help in developing recommendations for marketers (*objective seven*).

Question 10 uses a seven point semantic differential scale, with elements designed to identify factors that may affect the buyer behaviour of FF products (*objective four*).

The purpose of Question 11 and 11.1 was to identify if consumer health issues influence the purchase of FF products. This list was identified from literature (Tuohy *et al.* 2009). The questions are nominal multichotomous and concerned with *objective four*.

The purpose of question 12 is to find out how many participants are aware of the EFSA (Horton, 2010). It uses a nominal dichotomous scale (*objective five*).

Question 13 uses a seven point semantic differential scale and measures participants' attitudes towards given elements on either side of the scale, in relation to the regulations and labelling of FF products (*objective five*). This question may also aid in developing recommendations to the marketers of FF.

Questions nine, 10 and 13 were elements the researcher had identified and adapted from the literature review (Lalor *et al.* 2011, Tuohy *et al.* 2009, Verbeke 2008, Siro, *et al.* 2008, L'Abbe *et al.* 2008, Niva 2007 and Gillbert 1997).

Question 14 is an open-ended question and has been included to give participants the chance to make additional comments.

(For full questionnaire, see appendix three.)

3.4.2 Exploratory Research: Semi-Structured In-Depth Interviews

Interviews consisted of a series of open-ended questions to probe and encourage extensive and meaningful responses. The researcher was aware, the analysis required is manual and although time and labour consuming (Crouch and Housden, 2003) was valuable research.

Question one was designed to identify suppliers' awareness levels of the term FF (*objective two*). Questions two and three were designed to find characteristics of typical FF consumers (*objective one*). Questions four, five, and six were designed to answer *objectives three* and *four*, perceptions and influencing factors of consumers' purchasing behaviours. Questions seven and eight were designed to aid answering *objective five*, to identify marketing, labelling and regulation activities of FF. Finally, questions nine, 10 and 11 were designed to identify future trends, successful marketing activities and any other comments (*objective seven*).

(For full interview theme-sheet, see appendix four.)

3.5 Sampling

The first stage in designing a sampling strategy is to define the target population, which Malhotra (2010) describes as the people who provide the relevant information to answer the research objectives.

3.5.1 Stage One – Descriptive Research

This aims to find out the awareness levels, perceptions and buyer behaviour of consumers towards FF.

Target Population: The target population can be defined as: males and females, over the age of 18, who are consumers of FF and non-FF products in the Donegal region in May 2011. The most effective method of targeting consumers was to complete the survey outside supermarkets and health-food shops.

Sampling Frame: Due to the nature of the target population, a frame of every member of the population is unavailable therefore the researcher chose a non-probability method and statistical data (table 3.1 below) to complete the research.

Method: Non-probability was chosen, as not every element of the target population has a chance of being selected (Malhotra, 2010). It relies on the judgment of the researcher to choose the participants, as long as they are in line with the sampling frame. The researcher has chosen quota sampling, as it is the most sophisticated non-probability technique.

Sampling Technique: Non-probability quota sampling was used. This method is a two-stage restricted judgmental sampling which consists of developing quotas of population elements, with the sample element selected based on the judgment of the researcher (Malhotra, 2010).

Sample Size: 100 questionnaires were distributed. This figure was based on similar research completed by Doohan, *et al.* (2009). This obtained perceptions and attitudes of both genders and eliminated bias. Limitations on time and money had an influence over the sample size (Malhotra, 2010), thus surveys were distributed in the Donegal region.

Data on the characteristics of the population was obtained from the Central Statistics Office (CSO) census 2006. The researcher has developed quotas on the basis of age and gender, as this was the most representative of the target population and did not eliminate potential candidates. For the first age category under study, the information available was based on 15-24 years, however for ethical reasons the researcher decided to only question respondents above 18 years. The characteristics of the population were reflected in this sample.

Table 3.1 Sampling frame quotas for age and gender

Age Categories (years)	No. of males needed (49%)	No. of females needed (51%)	% of people needed
18 – 24	9	9	18%
25 – 44	20	21	40%
45 – 64	14	14	28%
65+	6	7	14%
Total	49	51	100%

3.5.2 Stage Two – Exploratory Research

Target population: The target population was suppliers of FF products as they were able to provide relevant information. They can be defined as marketing/purchasing managers of companies who supply FF products throughout Ireland in May 2011.

Sampling Frame: Due to the nature of the target population, no comprehensive sampling frame was available therefore all suppliers of FF were potential candidates. The researcher obtained an article by Lalor, *et al.* (2009:p1) stating the four largest FF categories were beverages (soft-drinks), confectionery, dairy and bakery. The researcher then used judgement sampling to choose the suppliers/interviewees from each category.

Sampling Method: Non-probability sampling, which relies on the judgement of the researcher was used to select the interviewees from the database. This method is suitable for research that does not have a comprehensive sampling frame (Malhotra, 2010).

Sampling technique: Judgment sampling was used to select participants for the interviews. The population element was selected based on the researcher's judgment (Malhotra, 2010). Crask (1995) suggests this allows the researcher to target suppliers who are believed to be representative of the target population and have the knowledge required to participate in the study.

Sample size: Five interviews were conducted. Four of these interviews were with suppliers in the FF sector. This number was based on the four categories defined above. The researcher believed that one supplier from each category would give a comprehensive view and aid answering the objectives. The final interview was conducted with an expert representative of

FF, who has written many articles on consumer and industry views on the FF sector. The final interview is aimed to triangulate all findings.

3.6 Analysis

Collected data was successfully analysed. Quantitative research findings were edited, coded, input and analysed using Statistical Package for the Social Sciences (SPSS), for counting frequencies, averages and to check if relationships exist between variables. Qualitative research was analysed by seeking key words, phrases and patterns that emerged from the findings and illustrated in a narrative format (Robson, 2002).

3.7 Conclusion

The researcher sought to expose the attitudes and buyer behaviour towards FF, with a special focus on marketing strategies, regulations and labelling aspects. Consumer surveys and in-depth interviews have been described and justified.

Chapter 4

FINDINGS AND ANALYSIS

4.1 Introduction

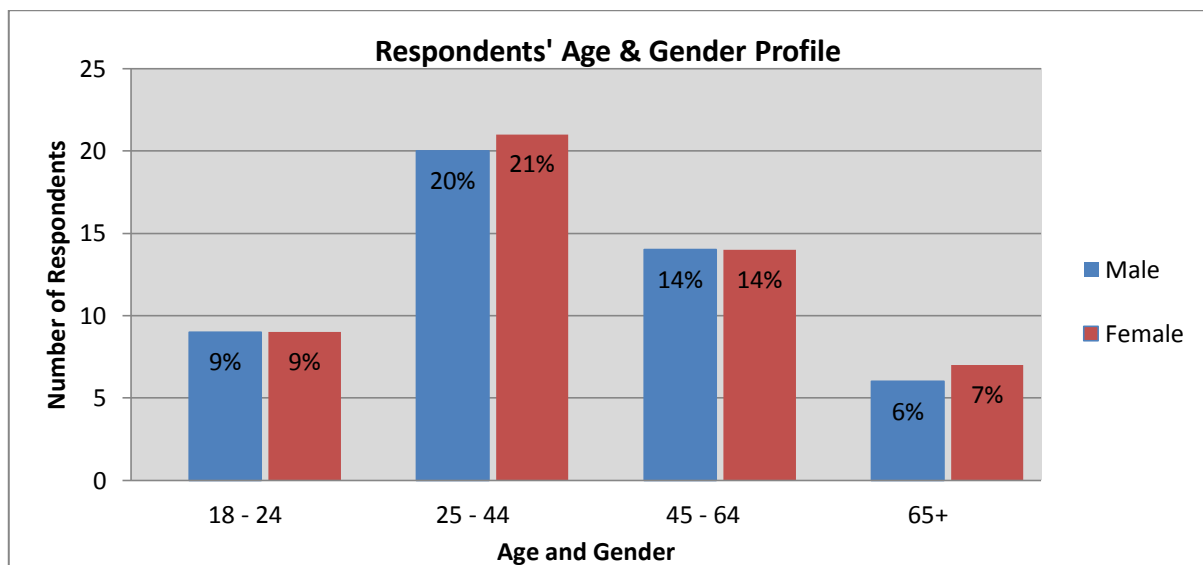
Two phases of findings and analysis are presented in chapter four. Phase one presents descriptive findings from 100 consumer questionnaires. Phase two analyses exploratory information gathered through four interview representatives of the FF sector. Participants represented four categories from literature findings (Tuohy, *et al.* 2009). An additional interview was conducted with an FF research expert to triangulate findings.

4.2 Phase One: Survey

Data collected was cleaned and outliers dealt with. The researcher believed running box-plots twice to detect outliers was sufficient. Outliers found were neutralised. A series of cross-tabs, chi-squares, T-tests and ANOVA's were carried out on the quantitative findings using SPSS to test for presence of significant relationships between variables.

4.2.1 Demographic Details

Figure 4.1 Respondents' age and gender profile



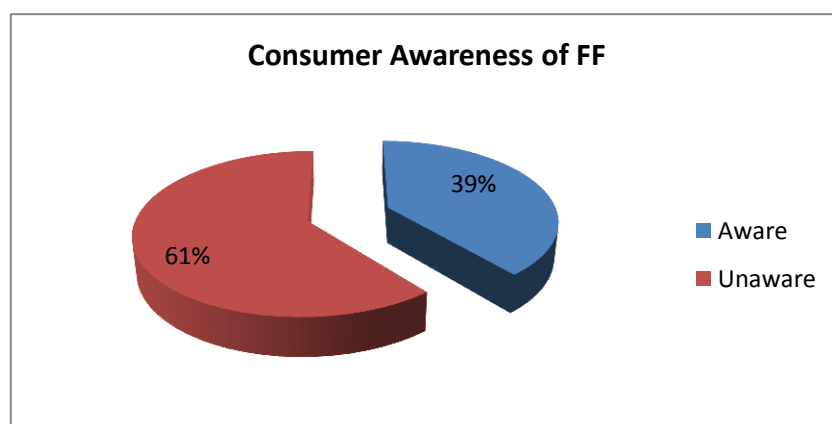
A quota sample of 100 FF consumers was taken, using age and gender as quota controls (see table 3.1). Figure 4.1 highlights 49 males (49 percent) and 51 females (51 percent), giving a

total of 100 respondents. Therefore, quotas set for each age and gender category were reached and the demographic profiles of respondents can be seen in figures 4.2-4.5 appendix five. Figure 4.2 indicates of 100 surveys completed, showed the majority household status were single (34 percent) followed by empty-nest (18 percent), couples (16 percent) and full-nest with young children, teenagers and young adults (14 percent). Figure 4.3 indicated of the total household-income, a large proportion (44 percent) resided in the 20-39K category, followed by 25 percent less with than 19K, 16 percent within 40-59K, nine percent within 60-79K and only six percent within 80K plus category. Additionally, when asked what social class they were, 79 percent belonged to class C1 or lower while only 21 percent were class B and above (see figure 4.4, appendix five). In relation to respondents' highest level of education (figure 4.5), over half of respondents (56 percent) had only received secondary education while 44 percent had received undergraduate to Masters level education.

Further statistical analysis was completed based on age and gender (see section 4.2.6). A significant relationship was found if a FF was recommended by a health professional or where there was consumer trust in FF products. Age was the varying factor.

4.2.2 Awareness Levels

Figure 4.6 Consumer Awareness of FF



According to Armstrong *et al.* (2005), there was a general lack of awareness of FF. This new research indicates awareness levels remain relatively low, as 39 percent is a mid-figure out of 100 respondents (figure 4.6).

Past literature suggests the typical FF consumers are ‘females, usually well-educated with higher income levels (Siro *et al.* 2008 and Gray, *et al.* 2003). Survey findings imply, of the 39 percent of respondents, more males (22 percent) than females (17 percent) are aware of FF. The majority are aged 25-44 (12 percent) and 45-64 (14 percent) and 1/3 were in the single household-status. Twenty-five percent of respondents have had secondary education or lower while only 14 percent of respondents were educated in undergraduate or above. These findings suggest, within the sample surveyed, the typical FF consumer is ‘male, 25-64 in the lower education and income categories’. Table 4.1 (see appendix five) gives a break-down of awareness versus gender, age, income, social class and education.

Figure 4.7: Comparison of Gender profile of respondents aware and not aware of FF

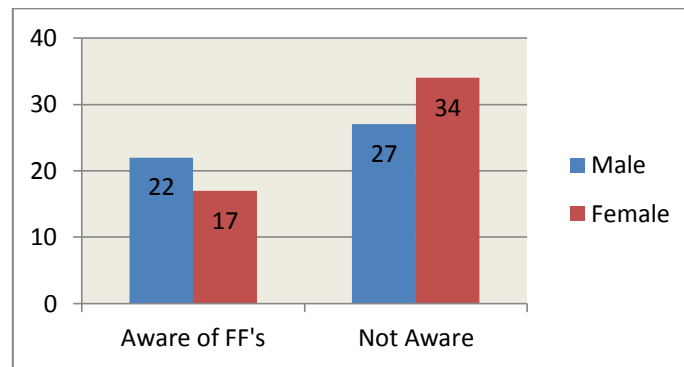


Figure 4.8: Comparison of Age profile of respondents aware and not aware of FF

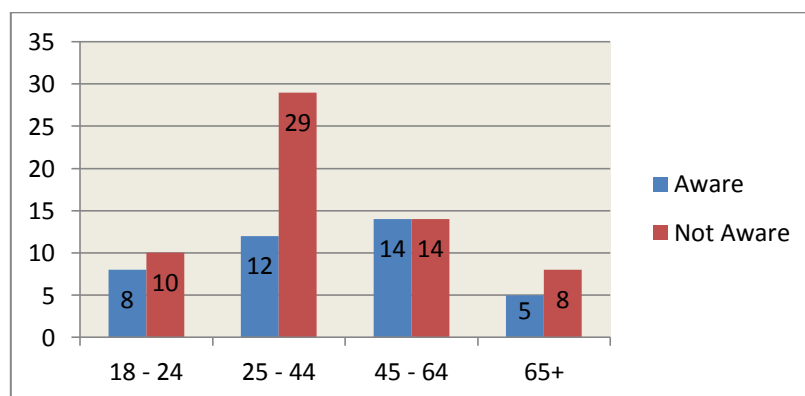


Figure 4.7 demonstrates the gender profile of respondents who are both aware and unaware of the term FF. It shows females are twice as likely to be unaware (34 percent) than aware (17 percent), whereas males are almost evenly split (22 percent aware/ 27 percent unaware).

Figure 4.8 compares respondents’ age profiles who are both aware and unaware of the term FF. Findings imply awareness is highest in the 45-64 (14 percent) and the 25-44 (12 percent)

segments and surprisingly only 5 percent of the 65+ segment were aware. Whereas, Gunzelmann *et al.* (2006) highlighted that individuals in the older age categories invest more in their health and are more likely to have health conditions than the younger generation. Furthermore, 29 percent of 25-44 segments were unaware, almost twice as much as any of the other age segments.

4.2.3 Purchasing Habits of FF consumers

Figure 4.9 Consumer Frequencies of Household Purchases in Seven Categories

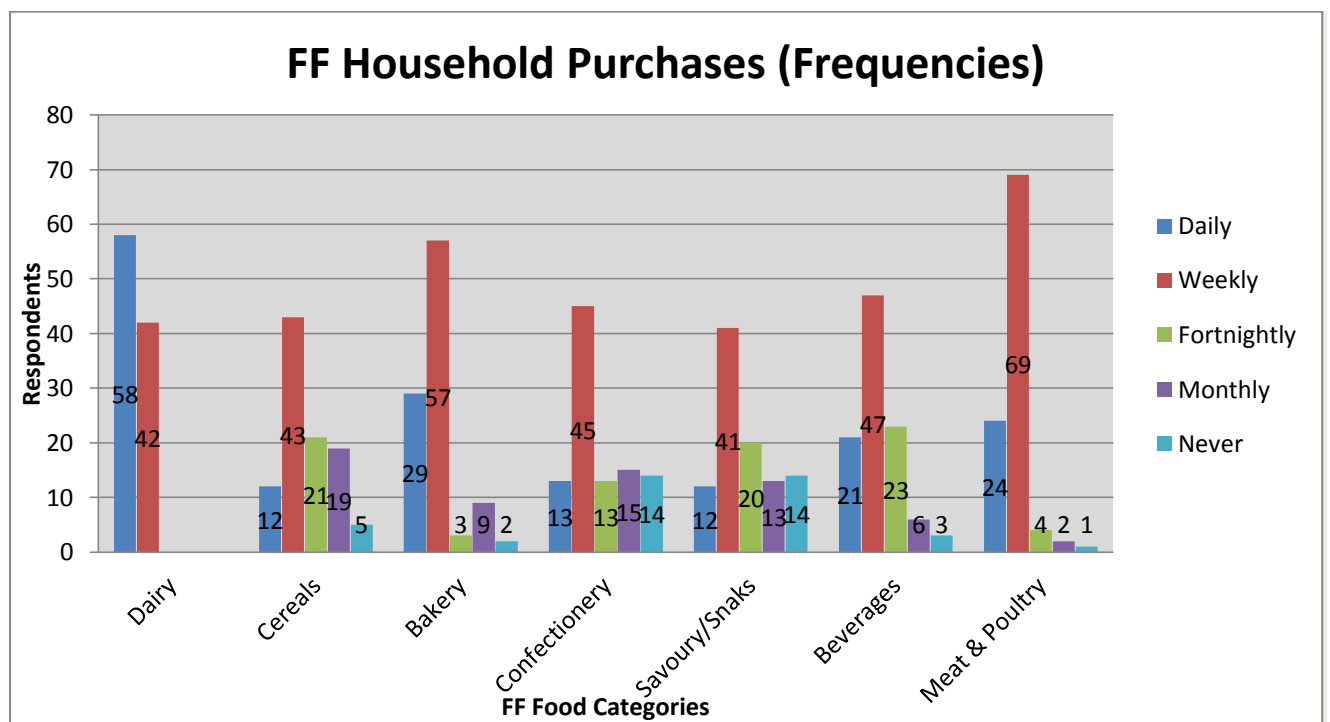


Figure 4.9 shows purchase frequency. Each category was identified in past literature (Tuohy, *et al.* 2009). This bar-chart illustrates dairy products are purchased most frequently as 100 percent buy on a daily or weekly basis. Bakery (86 percent) and meat and poultry (93 percent) are also most frequently purchased on a daily or weekly basis. All other categories are evenly split. Figure 4.9 indicates the majority of households tend to grocery-shop on a daily and weekly basis.

4.2.4 Influencing Factors of the Purchase of FF Products

Table 4.2 (see appendix five) illustrates respondents' level of agreement on factors to purchasing FF. As shown in figure 4.10, respondents felt more strongly about the statements given. Positive aspects shows 60 percent of respondents 'believe FF can make a difference to their health'; 56 percent 'care about FF'; 48 percent 'trust the FF message' and 47 percent 'like the packaging'. However, 59 percent felt 'FF are too expensive'.

Additionally, figure 4.11 demonstrates respondents strongly disagreed about being 'aware of FF regulatory bodies' (67 percent) and 54 percent disagreed with 'just pick up whatever I see'. Negative feelings indicate 56 percent of respondents believe 'FF are poor quality' and 51 percent do not 'know enough about FF'.

Positive feelings indicated that respondents believed FF could make a difference to their health; care about FF; trust the FF message and like the packaging. However, negative aspects indicated FF are too expensive; consumers do not know enough about FF; believe they are poor quality and a large percentage are not aware of regulatory bodies governing FF.

This relates to past literature outlining how people are beginning to take greater control of their general health and health issues and becoming more knowledgeable of FF benefits (Siro, *et al.* 2009). Moreover, IFIC (2000) and Gilbert (1997) suggest FF are not price-sensitive as they are becoming more mainstream and are also targeted at lower income consumers. However, 59 percent of respondents still feel 'FF are too expensive'.

Figure 4.10: Main statements respondents agreed with

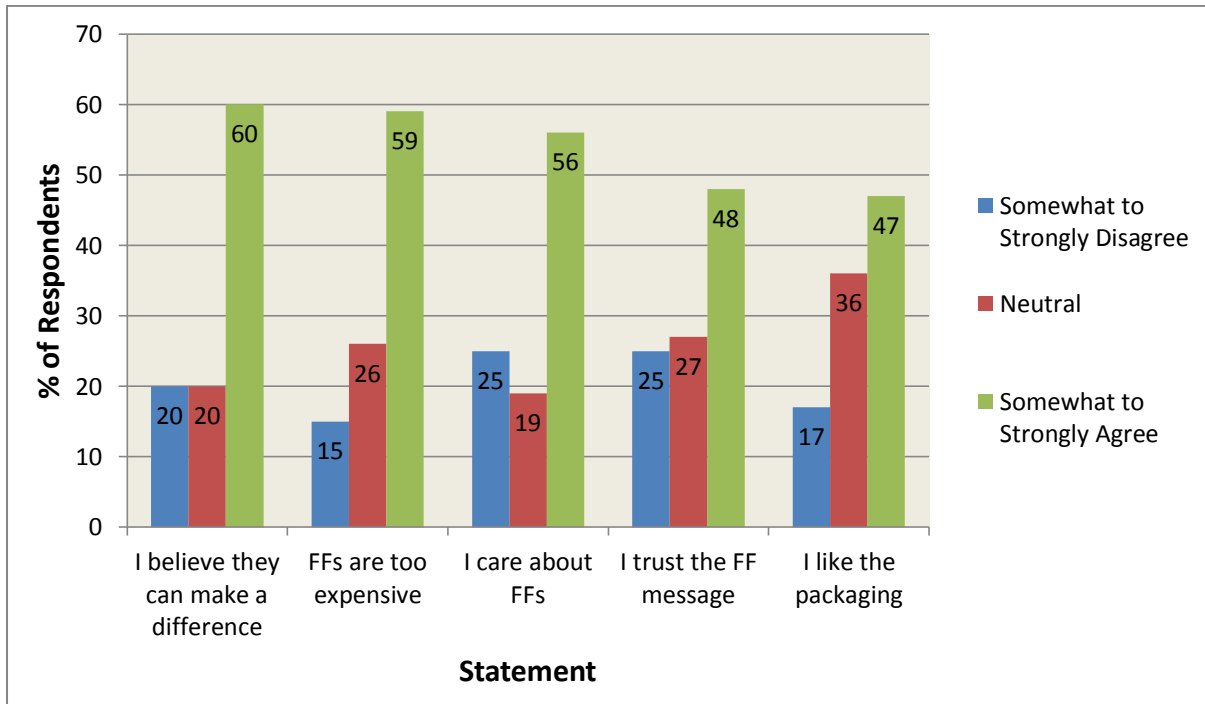
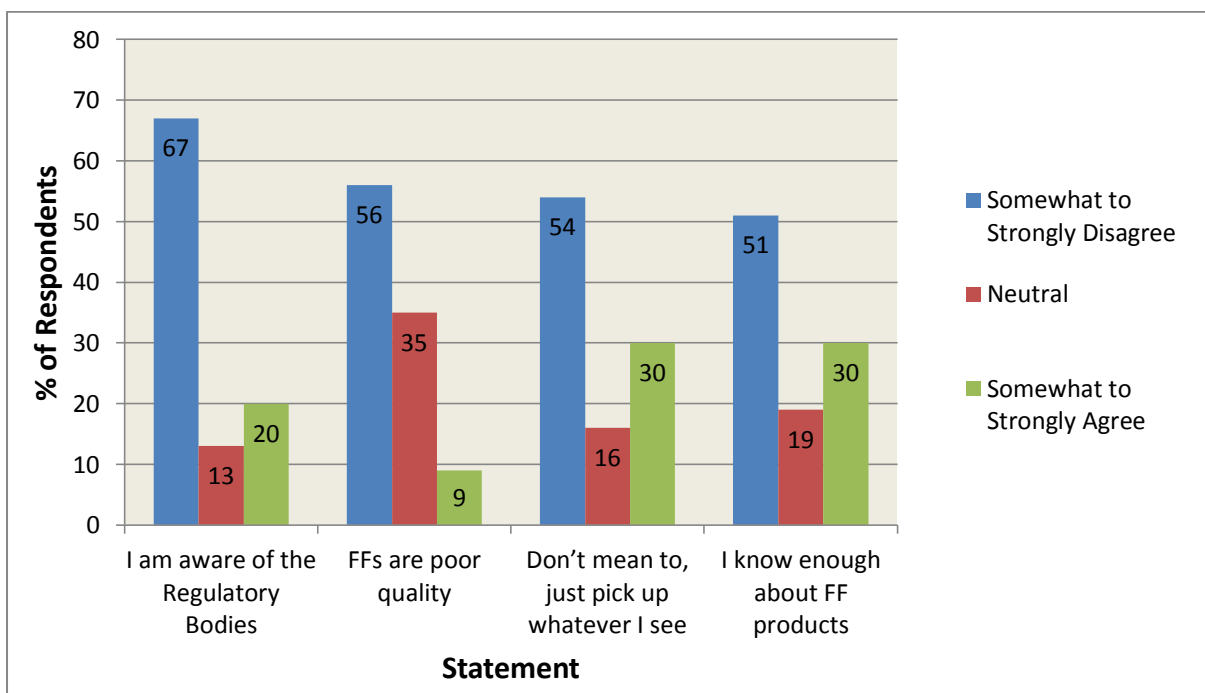
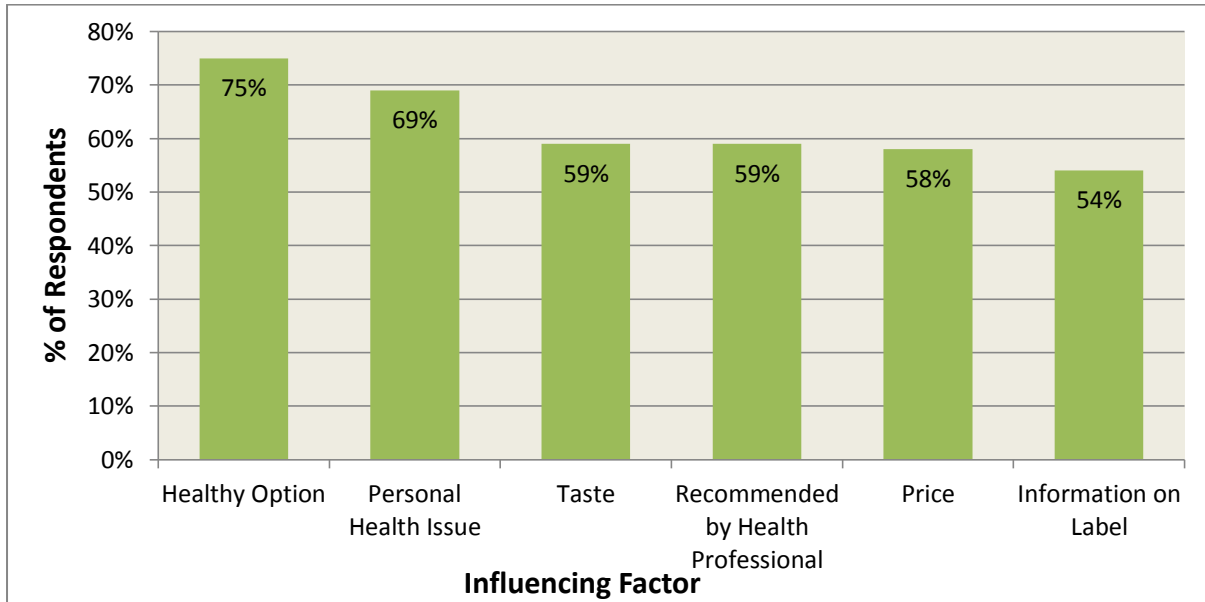


Figure 4.11: Main statements respondents disagreed with



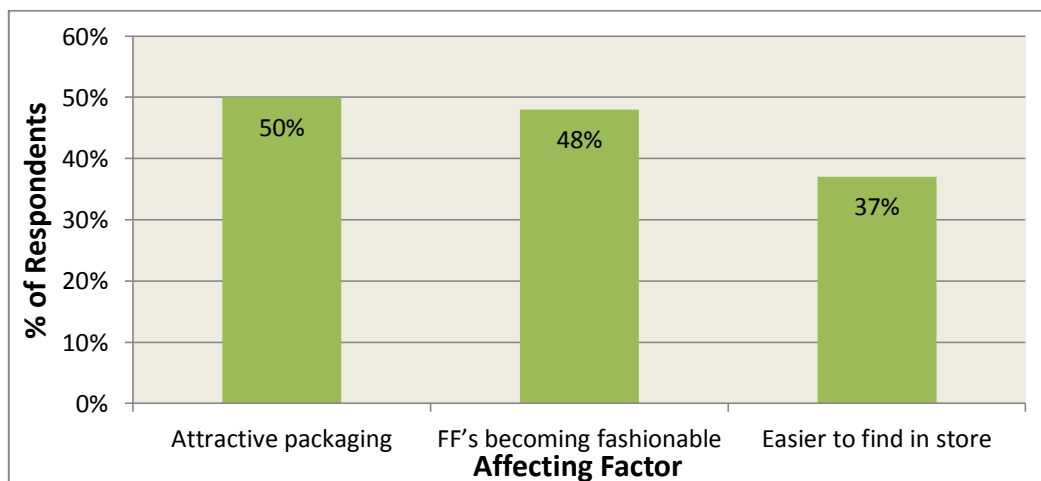
Verbeke (2008) highlights that consumers weigh up factors including health, nutrition, taste, price and convenience when buying FF. Findings in table 4.3- factors affecting or influencing consumer purchase of FF (appendix five) indicate consumers deem to be most affected by the following factors (figure 4.12): health option, personal health issue, taste, recommended by health professional, price and information on labels.

Figure 4.12: Main factors affecting purchase of FF



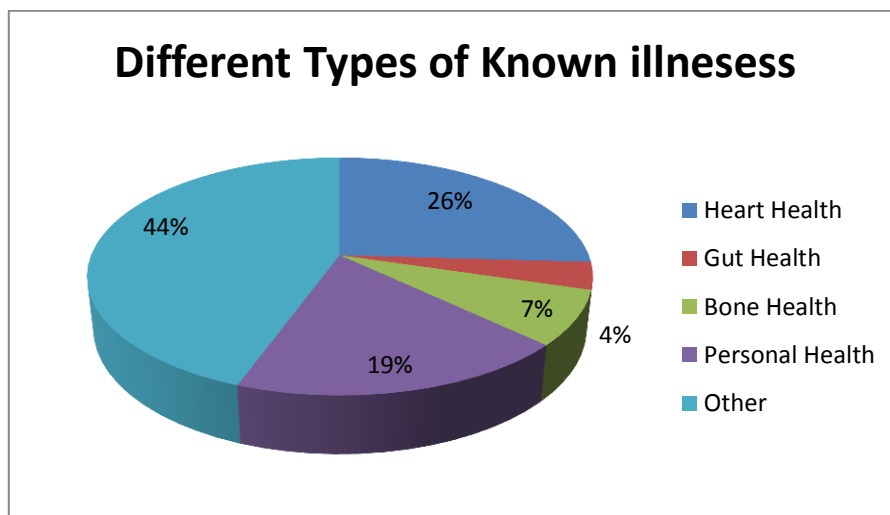
Furthermore, findings also showed respondents were least affected by: attractive packaging; fashionable and FF easier to find in store (figure 4.13).

Figure 4.13: Main factors least affecting purchase of FF



Findings indicated, that of 100 respondents surveyed, 68 percent had no form of illness, 27 percent had a known illness and 5 percent were unsure. Moreover, it was found that of the 27 percent of respondents who had an illness, 26 percent were heart related; personal health issues (19 percent); bone health (7 percent); gut health (4 percent) and the remaining 44 percent had other issues (see figure 4.14). These included: bladder/kidney problems; diabetics; hormone imbalance; lung issues; coeliac and Multiple Sclerosis.

Figure 4.14 Types of illness/health issues suffered by respondents



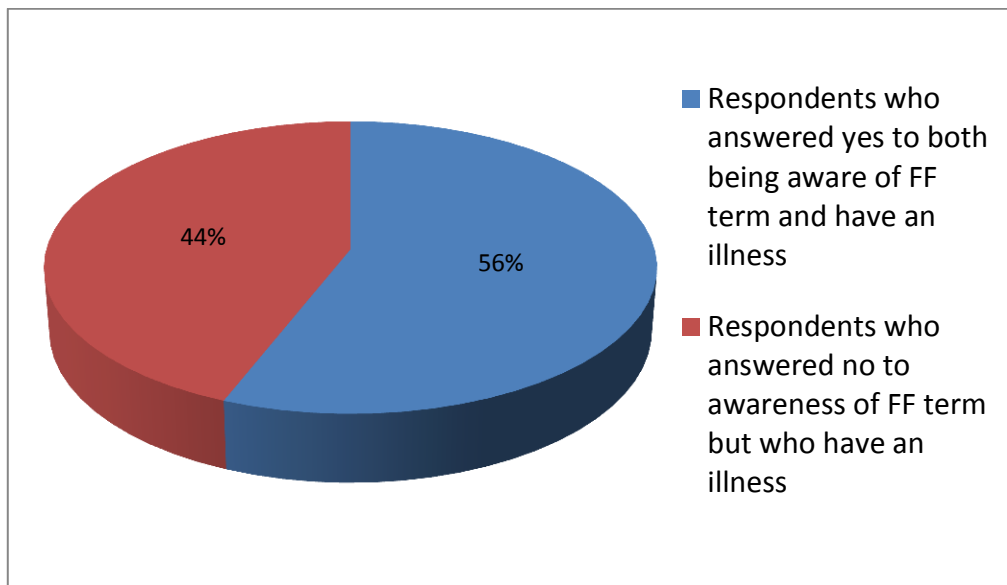
Crosstabs were completed to see if age and awareness of FF correlated with those respondents who answered yes to illness. The findings are presented in table 4.4 and figure 4.15.

Table 4.4 Age profile of respondents with illness

Age	Answered yes to having an illness (27%)
18-24	1
25-44	9
45-64	10
65+	7

The researcher expected that illnesses would be most common in the 65+ age group however table 4.4 shows it is distributed across older age groups. Moreover, illnesses were almost evenly split between genders (male 13 percent and female 14 percent).

Figure 4.15 Respondents with illness who are aware/unaware of FF



Lalor *et al.* (2011) and Gunzelmann *et al.* (2006) highlight that people who shop for FF with a probable form of illness or who shop for a relative or close friend who has an illness are more likely to be aware of FF. This corresponds with the survey findings, as over half (56 percent) of the 27 respondents who said ‘yes’ to having an illness also answered ‘yes’ to awareness of FF term whereas 44 percent were not aware of FF (figure 4.15).

4.2.5 Consumer Awareness and Attitudes towards Regulations and Labelling of FF

Figure 4.16 Respondents’ Awareness Levels of EFSA

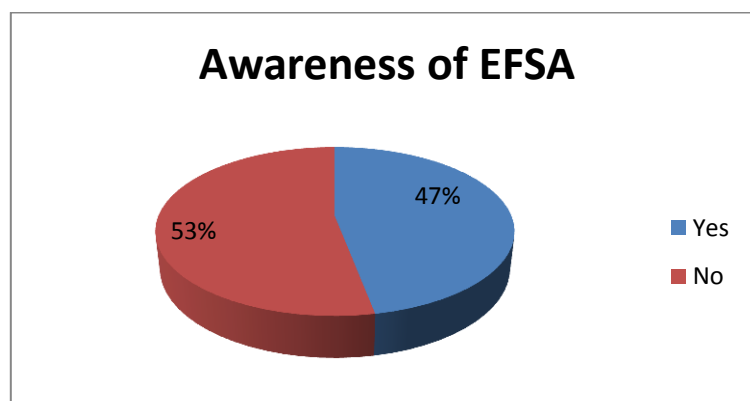


Figure 4.16 shows almost half of the respondents surveyed (47 percent) said they were aware of the EFSA. However, as shown in figure 4.11, 67 percent of respondents were not aware of

FF Regulatory Bodies (with mean = 2.71; mode = 1), thus indicating the majority of respondents do not know that EFSA is a regulatory body, governing FF in Ireland (Horton, 2010 and Agriculture and Agri-Food, 2009). Table 4.5 shows the majority of respondents had a mode of 4, indicating most respondents remained neutral on the first five statements. On the final statement however, a large number of respondents (76 percent) felt very strongly towards the importance of regulations and labelling of FF, (mean = 5.66; mode = 7).

Table 4.5 Respondents Attitudes towards Regulations and Labelling of FF

Respondents Attitudes towards Regulations and Labelling of FFs (%)				
	1 - 3	4	5 - 7	
Dishonest	24.0	35.0	41.0	Honest
Untrustworthy	24.0	34.0	42.0	Trustworthy
Unclear	38.0	26.0	36.0	Clear
Unappealing	16.0	36.0	48.0	Appealing
Inadequate	28.0	32.0	40.0	Adequate
Very Unimportant	6.0	18.0	76.0	Very Important

Consumers' comments exhibited mainly negative feelings (appendix six) towards FF with the exception of one comment. This further illustrates that consumers' do not completely trust the FF message and believe regulations and labelling could be improved.

4.2.6 Further Statistical Analysis

Based on these findings, further statistical analysis of the survey data was carried out and resulted in the hypotheses listed below. (Rejected hypotheses and assumptions made can be seen in appendix seven.) Gender and age were investigated as independent variables, and factors such as awareness, fashionable, price, label information, trust, healthy option, personal health issue and recommended by health professional were investigated as dependent variables and deemed by the researcher to be factors which could affect respondent attitudes towards buying behaviour of FF. Previous research in the area also highlighted gender and age as factors that affect the purchase of FF (DaCosta-e-Silva *et al.* 2007).

H0: Awareness of FF term is not affected by household status

H3: Awareness of FF term is affected by household status

A chi-square test for independence was run to investigate if a relationship between awareness levels and household status exists however, definitive conclusions cannot be obtained as 44.4 percent of the cells do not have expected frequencies of 5 or more. Thus, hypothesis H3 cannot be accepted, as both conditions are not satisfied and no significant relationship exists. However, findings indicate, of those aware (39 percent), awareness is highest within the 'single' (13 percent), 'couple' (9 percent) and 'empty-nest' (9 percent) categories and lowest in the 'family' category. These findings contradict Lalor, *et al.* (2011) and DaCosta e-Silva, *et al.* (2007) who claim that 'mothers with children are more likely to be aware and purchase FF.

H0: Awareness of FF term is not affected by form of illness

H4: Awareness of FF term is affected by form of illness

H0: Awareness of FF term is not affected by awareness of EFSA

H5: Awareness of FF term is affected by awareness of EFSA

Hypothesis H4 and H5 both indicated a significant relationship as the Sig. (2-sided) showed $H4=.035$ and $H5=.020$, which is less than .05 indicating a significant relationship. However, definitive conclusions cannot be obtained as more than 20 percent of cells do not have expected frequencies of 5 or more, which violates the test assumptions. Therefore, both H4 and H5 hypothesis cannot be accepted as both conditions are not satisfied. Findings suggest that out of the 27 percent of respondents with a form of illness or personal health issue over half (55.6 percent) are aware of the term FF, suggesting knowledge of FF may be slightly higher if respondent has a form of illness. This relates to literature findings by Lalor *et al.* (2011). Additionally, 64.1 percent of 25 respondents are aware of both the term FF and the EFSA highlighting the link between FF and the EFSA (see figure 4.15).

H0: Choosing FF when recommended by health professional was not affected by age

H19: Choosing FF when recommended by health professional was affected by age

In relation to H19, a significant relationship associated with age and FF recommended by health professional was found. A one-way between-group ANOVA resulted in a statistically significant difference at the $p < .05$ levels in scores for all four age groups: $F(3, 96) = 3.9$, $p = .011$. The actual difference in mean scores between the groups was small for age groups 1 ($M=4.33$), 2 ($M=4.34$) and 3 ($M=4.61$), however was significantly larger for group 4, 65+ ($M=6.38$). The effect size, calculated using eta squared, was 0.11, a small effect. Post-hoc comparisons using the Tukey HSD test indicated the mean score for group 4 (65+) was significantly different from groups 1 (18-24) ($M=4.33$, $SD=2.11$); 2 (25-44) ($M=4.34$, $SD=2.01$) and 3 (45-64) ($M=4.61$, $SD=2.10$). Group 4 (65+) showed the highest recorded scores, while group 1 (18-24) recorded the lowest scores. Therefore the hypothesis can be accepted as both conditions were satisfied. Furthermore, this indicates all age groups are influenced when FF are recommended by health professionals and more so in the 65+ age group.

H0: Trust in FF was not affected by age

H20: Trust in FF was affected by age

In relation to H20, a significant relationship associated with age and trust of FF was found. A one-way between-group ANOVA resulted in a statistically significant difference at the $p < .05$ levels in scores for all four age groups: $F(3, 96) = 3.9$, $p = .011$. The actual difference in mean scores between the groups was small for all age groups 1 ($M=4.78$), 2 ($M=4.24$); 3 ($M=4.14$) 4 ($M=4.92$). The effect size, calculated using eta squared, was 0.11, a small effect. Post-hoc comparisons using the Tukey HSD test indicated the mean score for group 3 (45-64) ($M=4.14$, $SD=.80$) was significantly different from group 4 (65+) ($M=4.92$, $SD=.86$). There was no significant difference in groups 1(18-24) and 2(25-44). Therefore the hypothesis can be accepted as both conditions were satisfied. Furthermore, this indicates older age groups (44-64 and 65+) are more likely to trust FF products than groups 18-24 and 25-44.

4.3 Phase Two: Interviews (Four suppliers/One industry expert)

4.3.1 Awareness of term FF

Four respondents were aware of the term FF, whereas one had ‘never heard of that term’. Furthermore, one respondent highlighted that suppliers do not market any of their products as FF, however, terms consumers identified with included ‘healthy foods’; ‘nutrition and health claims’ and ‘superfoods and drinks’. Two respondents stated ‘FF are much more popular now than several years ago’. When asked from a consumer perspective, all respondents stated, this is not a term consumers are aware of and the FF expert indicated:

‘Consumers who grocery shop regularly aren’t aware of this term. They are familiar with the concept, even though the term FF doesn’t mean anything to them, only a very health conscious consumer would be aware of this term’.

This supports literature findings (Armstrong *et al.*, 2005) emphasising a general lack of FF awareness and this term is mainly a scientific concept (Roberfroid, 2002). This also supports the low-mid awareness levels found from the consumer surveys (figure 4.6).

4.3.2 Typical FF Consumer

Past literature suggests typical FF consumers are ‘females, middle-aged, usually well-educated with higher income levels (Siro *et al.* 2008, Teratanavat and Hooker 2006, Gray, *et al.* 2003 and Anttolainen *et al.* 2001). Indeed, demographics vary with each author. This was confirmed by all respondents. The majority were typically female, due to the fact housewives and mothers are the principle shoppers/decision-makers regarding household purchases.

All respondents and past literature seem to differ on a typical age, with four respondents highlighting the 30-50 plus categories. One argued it was mainly a younger generation 18-30 who are health conscious. Moreover all respondents agree that ‘one product does not fit all’ in the FF market and the success depends on how well you differentiate between each product to suit the target market.

One respondent also suggests that:

‘education is hugely important when it comes to fortification in general. However, now FF are becoming more mainstream, consumers seem to generally know what benefits FF have for their body, possibly due to media coverage’.

Moreover, all respondents agree somewhat to income no longer playing a major role in consumers’ purchase habits, as FF are ‘no longer hugely different in price from conventional foods’.

Agriculture and Agri-Food, Canada (2009) outline that demographics play a minor role in consumer acceptance of FF, something three of the respondents also highlighted. Furthermore, the expert believes ‘nowadays females are the majority purchases of FF however moving towards a cross-gender audience’. This also confirmed survey results (figure 4.7) indicating males are more aware of FF.

4.3.3 Factors Affecting/Influencing Purchase of FF and Consumer Perceptions

The main reasons that influence the purchase of FF products are ‘healthy options’; ‘recommended by a health professional’; ‘if a shopping for someone with an illness’ and ‘their stage in the family life cycle’. Other minor reasons identified included, ‘fashionable’; ‘media prompts’ and because they are becoming increasingly more ‘mainstreamed products’.

Four respondents also identified price as a reason that can act as both a positive and negative element. They suggest, even in recessionary times, consumers are becoming less price sensitive on FF products. This may be due to the fact prices, if at all, are only a fraction higher than non-FF products. This corresponds to literature findings (Lalor *et al.*, 2011) and Tuohy *et al.*, 2009) and survey findings (figure 4.12).

Two respondents highlighted that ‘consumers are beginning to place more trust in what FF do for their health and believe they can make a difference’. This is reinforced by consumers survey (figure 4.10).

Moreover, the expert highlighted that:

‘two key factors keep showing up time and time again, taste and price. If it doesn’t taste nice, the consumer won’t buy it. They do compare on price however, nowadays the price of FF are quite similar to non-FF products and if the consumer knows they are getting value or quality for money they will go for FF even if more expensive’.

Thus, identifying taste and price can be factors that may hinder consumer purchase of FF. This was also highlighted in the survey findings figure 4.12 and in literature by Lalor *et al.* (2011). In addition, other factors affecting consumers purchase identified were ‘Quality’ and ‘Value for money’. One respondent explained that ‘larger families will tend to go for value packs as higher prices will put them off and consumers often believe the quality of FF have been tampered with when manufacturers try to make them healthy’. However, according to consumer surveys, illustrated in figure 4.11, over half of consumers somewhat disagreed that ‘FF are poor quality’.

Furthermore, four respondents commented on consumers’ perceptions of FF indicating that perception is split into three groups:

‘those who believe in the FF message, those who don’t care and those who are sceptical of the FF message and believe it’s just a marketing ploy: the first being a relatively mid-small group and the latter two groups take up the majority of consumers perceptions’.

Two respondents said brand familiarity plays an important role in consumers’ purchases. Consumers who know and trust a brand are more likely to buy new products and new lines presented by brands, even if they don’t know a lot about the new products.

4.3.4 Attitudes towards Labelling and Regulations

Four interviewees and the expert believe regulations and labelling of FF are very restrictive, almost too restrictive. One respondent stated:

‘Making claims is incredibly limited and tightly controlled. After all the regulated information and brand name and image is put on the packaging there is little room left to put the health claim, and even at that companies are very limited as to what they are allowed to write’.

Three respondents and the expert strongly believed ‘consumers do not read all the information that manufacturers are made put on the pack – they simply don’t have time’ and consumers only ‘read those few caption words on the front of pack’. Additionally, one respondent added ‘it’s a case of being strategic and different in what manufacturers say in those six words on the front of the pack’. The expert also highlights ‘the main element consumers look for on packaging is the benefit (example given: reduced fat)’.

However, it was found in the consumer survey illustrated in figure 4.12 and table 4.5 that consumers feel that ‘information on the label if very important’.

According to one respondent, social media is one aspect of communication used to educate consumers about FF products and should be expanded further:

‘we don’t get to put a lot on the label but there’s more influence and room on social media to blog about the benefits and educate consumers’.

Additionally, the expert highlights that consumers need increased levels of information in order to make educated decisions. They need to be convinced that buying FF will make a difference to their health.

All this contributes to consumer confusion and reluctance to purchase and all five interview respondents highlight the need for harmonisation of regulations to reduce confusion. One respondent also states that ‘they need to become clear so that we as manufacturers can be as clear as possible to our consumers’.

4.3.5 Marketing FF Products

It was found that marketing of FF products ‘should be no different to any other conventional products’. Respondents felt the following were important in terms of marketing FF products:

‘Familiarity of brand’; ‘packaging and labelling information’; ‘communicating and educating consumers’; ‘advertising’; ‘using social blogs’ to get the benefit across and gain the trust of consumers’.

This confirms literature findings where FF are often wrongly perceived and marketers need to become more effective in educating consumers (Horska and Sparke, 2007 and Wansink, 2005).

It was also suggested by all four respondents that:

‘markets need to be differentiated and specific products need to be targeted at segmented consumers who need and what these products’.

This is confirmed by both the expert who stated that ‘independent segregated market segments are needed’ and literature which indicates that ‘one strategy does not work for all’ (Wansink, 2005).

4.3.6 Future Trends

Five respondents stated the main reason for starting and continuing supplying FF are consumers demands and trends. One respondent highlighted that ‘focus groups are regularly carried out to tease out what consumers are looking for next’.

All respondents outlined that the FF industry is in the ‘early development stage of its lifecycle’ which is also highlighted by DaCosta-e-Silva *et al.* (2007). However, until the ‘regulations and legislations are harmonised’ or at the very least are ‘less confusing’ will this industry see a vast growth. One respondent concluded that:

‘even though consumers wallets have had a hit within the last twenty-four months, they still want to get valued added products and value for money’.

Furthermore, some examples of the FF identified include: ‘low fat; low salt; vitamin added and skimmed dairy’. The FF expert suggests:

‘there are four main areas for future growth in the FF industry, energy and weight management are the two biggest areas and bone and gut health are secondary, although I’m not sure where gut health can go as it is very hard to define and difficult to communicate with consumers. . . .and these are the categories where consumers want the products and have enough disposable income for’.

This confirms literature findings including Sloan (2010) and Euromonitor International (2010).

4.4 Conclusion

This chapter illustrated and analysed the descriptive and exploratory findings and compared them to the secondary data collected in the literature review. Primary research involved the collection of data from consumers and suppliers of FF in Ireland. Data collected through consumer surveys has been graphically illustrated and compared to the literature. Additionally, exploratory findings (interviews) were then compared with descriptive and literature findings.

Further statistical analysis exposed significant differences between age and if FF were recommended by health professionals and between age and trust of FF. Findings suggest the term FF is being phased out and the need for a generalised term is necessary to eliminate confusion. Additionally, it had identified the typical FF consumer found in literature findings, which corresponded with interview findings but differed from survey findings. However, all interviewees believed that, in the future FF products cannot be targeted at one group and each different product needs to be segmented to target specific consumer needs.

A full conclusion will be provided in the following chapter.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study examined the influencing and affecting factors on the purchase of FF products and how regulations and labelling impacts on consumer perceptions of FF. The literature reviewed secondary research around FF, addressing elements such as definitions, history and origin, regulations and legislation, labelling, proposed benefits and marketing. The primary research involved both survey and interview methods, with an additional interview with an expert FF representative, used to triangulate all findings. It is the aim of chapter five to summarise the research as a whole and demonstrate how objectives were achieved.

5.2 Typical FF Consumers and Awareness Levels

Results from the survey research indicated the typical FF consumer is 'male, 25-64 in the lower education and income categories'. However, past literature suggests typical FF consumers are 'females, usually well-educated with higher income levels' (Siro *et al.* 2008 and Gray, *et al.* 2003) and findings from interviews conclude the typical FF is usually female highly educated and the gatekeeper/shopper for the family or those responsible for shopping for people with health issues. Additionally, the research revealed FF consumers are spread across the gender divide.

It is evident from literature (Siro, *et al.*, 2008), that FF have come a long way since their introduction in the 1980's. Trends suggest that 'one strategy does not work for all FF', they need to be differentiated into specific markets, which confirms interview and literature findings including Wansink (2005).

The research revealed awareness levels, from consumer perspectives (figure 4.6), are relatively low (39 percent), whereas, from an industry perspective, a high percentage knew the term. However, the majority specified it was not used often within the FF industry or by consumers.

5.3 Factors that Influence/Affect Purchase of FF Products and Consumer Perceptions

The research revealed the main rationale behind the purchase of FF products is due to health benefit, personal health issues, a close relative having health issues or recommendation by a health professional. Consumers also highlighted attractive packaging and FF becoming fashionable as influencing factors, as illustrated in figures 4.12 and 4.13. Factors found to have the greatest effect on FF consumptions include taste, price, poor quality and lack of knowledge (figures 4.11 and 4.12). The majority of interview responses corresponded with survey findings however interviewees stated prices are much more harmonised nowadays and this was not a factor affecting consumers' buying habits. Yet consumers continue to consider price an important factor when purchasing FF products. Additionally, 67 percent of survey respondents were not aware of FF regulatory bodies (illustrated in figure 4.11).

Further statistical analysis revealed a significant relationship found if a FF was recommended by a health professional or consumer trust in FF products and age, thereby, indicating age as an element which influences buyer behaviour of FF.

It was found that FF are surprisingly positively perceived and accepted by the sample population. For example, 56 percent of consumers surveyed 'somewhat' to 'strongly agreed' that they care about FF and 60 percent indicated they believe FF can make a difference (figure 4.10). This reveals that FF consumer acceptance is positive.

Additionally, according to literature (DaCosta-e-Silva *et al.* 2007) and interview findings, FF are still at the early stage of their lifecycle and as highlighted from the interviews more consumer education would positively improve the growth and acceptance of FF.

5.4 Attitudes towards FF Regulations and Labelling

A large number of survey respondents (76 percent) felt very strongly about the importance of regulations and labelling of FF (table 4.5). Interview respondents indicated that 'people do not have time to spend reading packaging when shopping'. Results from interviews also

highlighted a sense of confusion with regard to regulations and labelling of FF products. Marketers felt they were ‘overly restrictive’ with the freedom of information allowed on the packaging.

Moreover, one interviewee stated that ‘consumers are becoming increasingly aware and require more knowledge of health benefits’. However, it was found that three interview respondents believe consumers do not overly care about the labelling, thus, leading to confusion over what consumers really want to know. Furthermore, it was suggested by the expert, that focus-groups should be carried out with consumers when packaging FF products, in order to dispel confusion.

5.5 Expert FF Representative

The expert interviewed was important to the triangulation of literature, survey and interview findings. The expert suggested the future of FF belongs in ‘independent segregated markets’ and the four principal future FF markets are ‘energy; bone-health; gut-health and weight-management’. It was also highlighted that for the development of FF, the public-health sector and the food industry need to collaborate, not only to benefit each other but to address issues such as weight-management.

5.6 Recommendations for Promoting of FF Brand

The recommendations below are only a guideline to help the FF industry promote FF products. It is important to note these are the main issues raised in this research and should only be used as guidelines.

The food industry and health-service sector need to collaborate to directly target specific consumer needs and prominent health issues.

Regulations need to be harmonised, as far as possible, to reduce confusion and increase trust among FF products.

As regulations are under review and at present marketers are limited as to the information offered on packaging, marketers need to begin to utilise other information channels such as social media and online forums, which are less restrictive and more informative and opinion based.

Lack of knowledge, lack of trust and prices were prominent issues affecting the purchase of FF products. Lack of knowledge can be mainly resolved by educating consumers through advertising campaigns and most effectively through social media (a low cost method) which will begin to educate and instil trust and awareness among consumers. According to interview respondents social media is proving to be powerful source in educating consumers rather than labelling and packaging. It is also important that the language and wording used to promote and educate is precise, clear and understood by consumers. Pilot tests, therefore, should be conducted, especially when information on labelling is produced. Additionally, as suggested by manufacturers, 'prices that are not equal or close to conventional products affect consumers purchasing habits'. Thus, prices should become harmonised, particularly in recessionary times.

There is a need to educate consumers on regulatory bodies as this was strongly highlighted in consumer surveys. A health-food stamp of approval (for instance if a FF product could get the EFSA stamp of approval), would help consumers know which foods are safe and beneficial and possibly increase sales of specific products.

Finally, a term recognised by both consumers and the food industry should be considered, in order to reduce confusion and increase knowledge and positive perceptions around FF products.

5.7 Research Reflections and Limitations

The research as a whole has been successful, as all objectives were met. There is, however, there is some scope for improvement.

Research was based on a small number and one should not extrapolate the findings to the general population.

FF was discussed on a more generic non-specific basis rather than on specifics.

The researcher found the method of face-to-face questionnaires to be a great aid in achieving a 100% response rate.

The researcher initially found the SPSS package difficult to use, however, with the aid of the SPSS booklet, overcame problems to complete the analysis.

The completion of this dissertation has helped the researcher gain great knowledge in the area studied and resulted in the improvement of vital research skills.

5.8 Suggestions for Further Research

It is important to remember results should not be generalised as a whole and should only be taken for the sample analysed.

During the completion of this research the researcher initially intended to complete additional interviews with a detailed breakdown of FF sector. However, due to time restrictions with the interviewees this was not possible, therefore, further research could be completed with additional representatives of the FF sector.

On completion the researcher identified surveying methods used could only gain limited information. The use of consumer focus-groups may add more in-depth understanding of consumers' perceptions and attitudes.

Further research should be conducted in Ireland, as this research has identified the FF sector is growing and more consumers are beginning to care and trust the FF message (see figures 4.10 - 4.13).

There are numerous science-based FF articles. More recently a consumer study background has been published and further research could be completed around the 'marketing' and 'branding' of FF. In conclusion, the researcher firmly believes the scope is there for continuous research in the FF consumer and industry perceptions area.

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www.eufic.org

www.europa.eu

www.fda.gov

www.foodinsight.org

APPENDICES

Appendix One:

WORD COUNT: 13,187

Appendix Two: Functional Food and Drink Sales (\$m), 2002 – 2012

Functional food and drinks sales (\$m), 2002 - 2012

Country	2002	2007	2012	Growth 2002-07	Growth 2007-12
France	637.2	807.9	980.4	4.9%	3.9%
Germany	1,497.9	1,982.5	2,524.8	5.8%	5.0%
Italy	768.2	1,138.1	1,525.2	8.2%	6.0%
Netherlands	230.5	285.9	346.2	4.4%	3.9%
Spain	449.3	641.1	813.7	7.4%	4.9%
Sweden	157.5	250.9	317.7	9.8%	4.8%
UK	1,667.9	2,103.3	2,533	4.7%	3.8%
US	18,104.1	27,230.5	36,653	8.5%	6.1%
Australia	516	657.7	840.8	5.0%	5.0%
China	9,593.5	12,491.5	16,162.2	5.4%	5.3%
Hong Kong	1,217.9	1,720.2	2,332.9	7.1%	6.3%
India	1,511.6	1,940.5	2,408.9	5.1%	4.4%
Japan	12,094.5	16,377.5	21,808.8	6.3%	5.9%
New Zealand	108.6	132.6	170	4.1%	5.1%
South Korea	1,647.2	2581	3,365.8	9.4%	5.5%

(Source Adapted from: Horton,2010, Business Insights)

Appendix Three: Questionnaire

Questionnaire on Consumer Attitudes towards Functional Foods

This questionnaire has been created as part of my Dissertation for the MSc in Marketing Practice in Letterkenny Institute of Technology and takes approximately six minutes to complete.

All information will be kept strictly confidential and you will remain completely anonymous throughout. Your participation is voluntary and you may withdraw at any time. The information you give will only be used for this project.

Thank you for taking time to participate in this study!

GENERAL QUESTIONS: (PLEASE TICK APPROPRIATE)

1) Age	2) Gender	3) Household Status	
18 – 24	<input type="checkbox"/> Male	<input type="checkbox"/> Single	<input type="checkbox"/>
25 – 44	<input type="checkbox"/> Female	<input type="checkbox"/> Couple	<input type="checkbox"/>
45 – 64	<input type="checkbox"/>	Single Parent (with young children)	<input type="checkbox"/>
65 +	<input type="checkbox"/>	Single Parent (with young children & teenagers)	<input type="checkbox"/>
		Single Parent (with young children, teenagers & young adults)	<input type="checkbox"/>
		Full-Nest (with young children)	<input type="checkbox"/>
		Full-Nest (with young children & teenagers)	<input type="checkbox"/>
		Full-Nest (with young children, teenagers & young adults)	<input type="checkbox"/>
		Empty-Nest (children left home)	<input type="checkbox"/>

4) ANNUAL HOUSEHOLD INCOME (please tick the appropriate box that best relates to your household income)? (Thousand Euro)

Less than 19 20 – 39 40 – 59 60 -79 80+

5) STATE YOUR OCCUPATION IN RELATION TO CATEGORIES LISTED BELOW:

Grade	Description	Tick Appropriate
A	High managerial, administrative or professional	<input type="checkbox"/>
B	Intermediate managerial, administrative or professional	<input type="checkbox"/>
C1	Supervisory, clerical and junior managerial, administrative or professional	<input type="checkbox"/>
C2	Skilled Manual Workers	<input type="checkbox"/>
D	Semi and unskilled manual workers	<input type="checkbox"/>
E	State pensioners, casual or lowest grade workers, unemployed with state benefits only	<input type="checkbox"/>

6) WHAT IS THE HIGHEST LEVEL OF EDUCATION (FULL OR PART TIME), WHICH YOU HAVE COMPLETED TO DATE? (PLEASE TICK APPROPRIATE)

- | | |
|--|--|
| <input type="checkbox"/> No Formal Education | <input type="checkbox"/> Undergraduate |
| <input type="checkbox"/> Primary education | <input type="checkbox"/> Postgraduate |
| <input type="checkbox"/> Secondary Education | <input type="checkbox"/> Postgraduate Masters |
| | <input type="checkbox"/> Postgraduate Doctorate (Ph.D) |

7) ARE YOU AWARE OF THE TERM 'FUNCTIONAL FOOD' (FF)?

Yes No

Definition Explained:

A Functional or Healthful food – is any food or drink that provides benefits beyond basic nutrition by way of added components and may prevent disease or promote health. They are:

- Similar in appearance to conventional foods;
- Consumed as part of a usual diet;
- Has demonstrated physiological benefits and/or reduces the risk of chronic disease beyond basic nutritional functions.

Examples include: Dairy: yogurts & milk, Cereals: Kellogg's Special K, Bakery: whole grand bread, Confectionery: Cadbury's Fruit & Nut, Savoury/Snacks: Kellogg's snack bars, Beverages: Lucozade Sport, Meat/Poultry: Fish.

Whereas, **Organic foods** are made according to certain production standards and farmed without the use of altered organisms.

8) PLEASE INDICATE THE EXTENT TO WHICH, IF AT ALL, YOUR HOUSEHOLD PURCHASES THE FOLLOWING FF CATEGORIES? (Tick appropriate box)

	<i>Daily</i>	<i>Weekly</i>	<i>Fortnightly</i>	<i>Monthly</i>	<i>Never</i>
Dairy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cereals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bakery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confectionery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Savoury/Snacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beverages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meat & Poultry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9) PLEASE INDICATE YOUR DEGREE OF AGREEMENT/DISAGREEMENT WITH THE FOLLOWING STATEMENTS:

	Strongly Disagree				Strongly Agree		
	1	2	3	4	5	6	7
I don't care about Functional Foods (FF) in general	1	2	3	4	5	6	7
I don't trust the FF message. I believe it is just a marketing ploy.	1	2	3	4	5	6	7
I don't know enough about FF products	1	2	3	4	5	6	7
FF products are too expensive	1	2	3	4	5	6	7
I will buy FF products, even if they are more expensive, because of the benefit	1	2	3	4	5	6	7
FF products are of poor quality	1	2	3	4	5	6	7
I don't like the packaging of FF products	1	2	3	4	5	6	7
I don't believe FF can actually make a difference	1	2	3	4	5	6	7
I try to buy FF whenever possible when shopping	1	2	3	4	5	6	7
Don't mean to (just pick up whatever I see)	1	2	3	4	5	6	7
I trust the FF products available	1	2	3	4	5	6	7
I am aware of the regulatory bodies governing FF claims & products	1	2	3	4	5	6	7

10) PLEASE INDICATE ON A SCALE OF 1 – 7 HOW STRONGLY AFFECTED, IF AT ALL, THE FOLLOWING HAS AFFECTED YOUR PURCHASE OF FF PRODUCTS: (1 = STRONGLY NOT AFFECTED & 7 = STRONGLY AFFECTED)

	Strongly not Affected						Strongly Affected	
Functional Foods (FF) has become fashionable	1	2	3	4	5	6	7	
Easier to find in store	1	2	3	4	5	6	7	
More options available	1	2	3	4	5	6	7	
Better Quality	1	2	3	4	5	6	7	
Taste	1	2	3	4	5	6	7	
Convenience	1	2	3	4	5	6	7	
Price	1	2	3	4	5	6	7	
Attractive Package	1	2	3	4	5	6	7	
Information given on label	1	2	3	4	5	6	7	
Familiarity and Security	1	2	3	4	5	6	7	
Trust Product	1	2	3	4	5	6	7	
Healthy option (makes a difference to my health e.g. weight loss, strengthen bones)	1	2	3	4	5	6	7	
Personal Health Issues (e.g. heart, bone, gut issues)	1	2	3	4	5	6	7	
Recommended by health professional	1	2	3	4	5	6	7	

11) DO YOU HAVE ANY FORM OF ILLNESS OR PERSONAL HEALTH ISSUES, WHICH YOU ARE AWARE OF? Yes No Unsure

11.1) If NO or UNSURE, please continue to next question. If YES, please indicate type?

- Heart health Gut Health
- Bone Health Personal Health Issues (i.e. weight)
- Other (Please State): _____

12) ARE YOU AWARE OF THE EUROPEAN FOOD SAFETY AUTHORITY?

Yes No



13) WOULD YOU SAY FUNCTIONAL FOODS (FF) REGULATIONS & LABELLING ARE:

Dishonest	1	2	3	4	5	6	7	Honest
Untrustworthy	1	2	3	4	5	6	7	Trustworthy
Unclear	1	2	3	4	5	6	7	Clear
Unappealing	1	2	3	4	5	6	7	Appealing
Inadequate	1	2	3	4	5	6	7	Adequate
Very unimportant	1	2	3	4	5	6	7	Very Important

14) DO YOU HAVE ANY FURTHER COMMENTS?

Thank you for your time!

Appendix Four: Interview Theme Sheet

Interview – Theme Sheet

1. Are you aware of the term functional foods (FF)?
 - a. Do you think consumers are aware of this term?
2. Who are your main market segments (customers)?
 - a. Secondary segments
3. In your opinion who is the typical FF consumer?
 - a. Typical characteristics of a typical FF consumer (age, gender, education, income, etc.)
4. In your opinion what are the factors that might influence or affect a consumer's purchase of FF products?
5. What influences your company to fortify Foods?
 - a. Reasons
 - b. What made you start and continue
6. Do you think FF consumers compare FF products to non-FF products? If yes, on what factors?
7. What do you think are the effects of positive and negative labelling of FF products? (informative or uninformative / clear or unclear)
 - a. Is labelling key on FF products and why?
 - b. To what extent do you feel consumers relate to the information exposed on the labelling and packaging of FF products?
8. According to research, FF regulations are not well defined and thus can affect consumer's perceptions of FF products. What are your thoughts on the topic?
9. What are the main factors, in your opinion, to the successful marketing for FF products?
10. What in your opinion are the future trends in the FF sector?
11. Finally is there anything that you feel is of relevance that you would like to add?

Appendix Five: Consumer Survey Figures and Tables

Consumer Survey - Demographic Details 4.2 – 4.5

Figure 4.2 Respondents Household Status profile

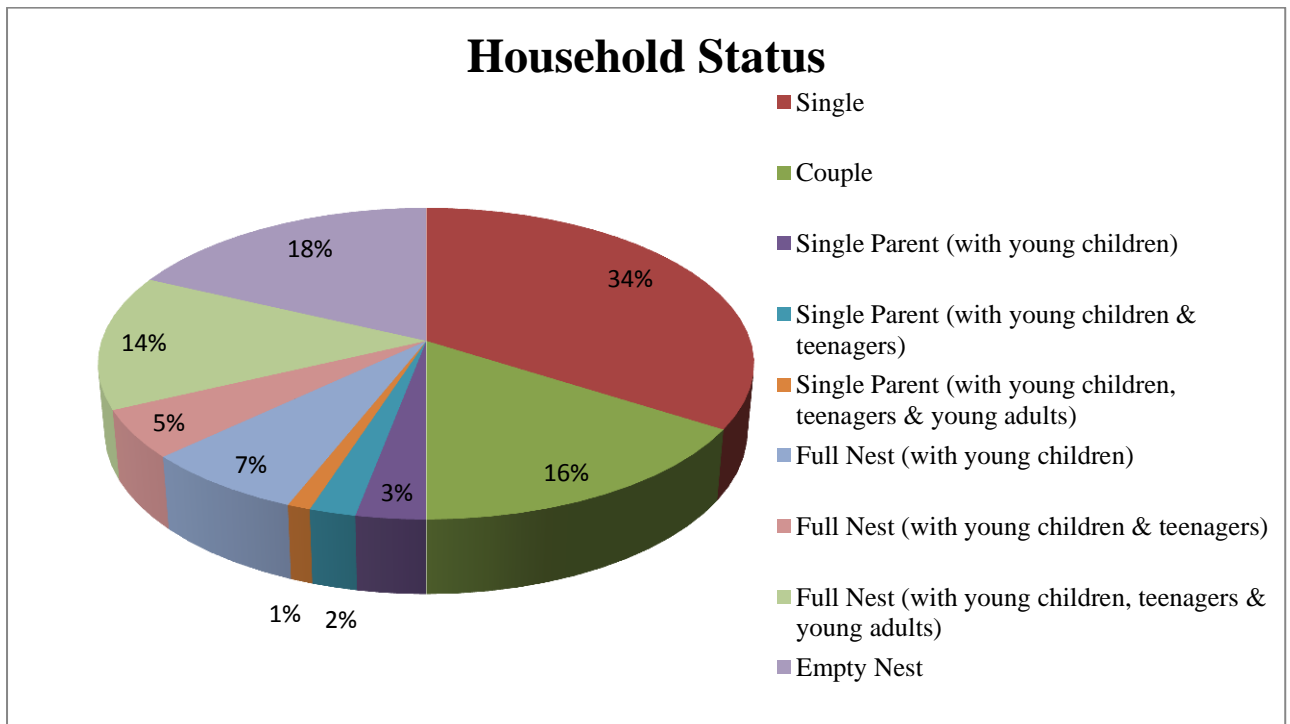


Figure 4.3 Respondents Household Income profile (K = Thousand Euro)

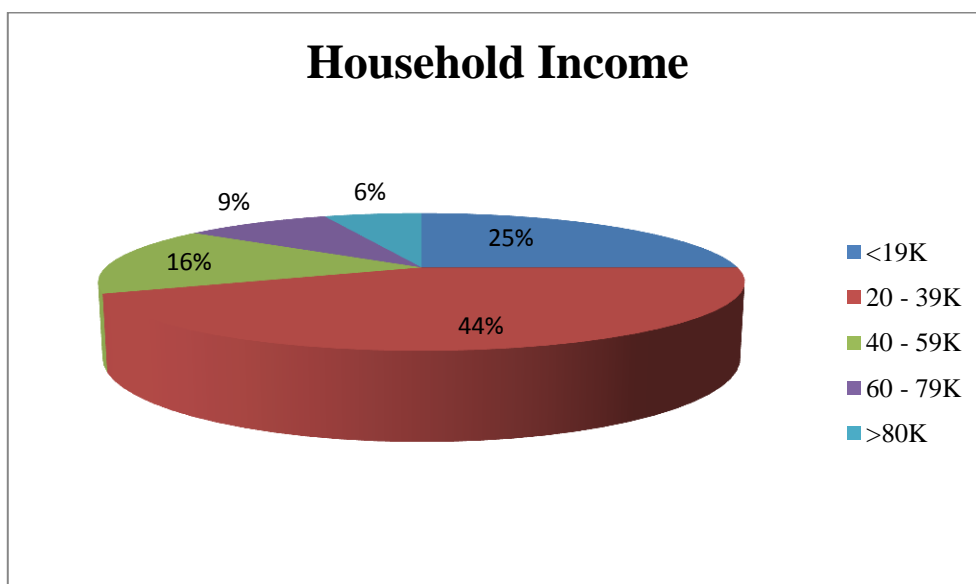


Figure 4.4 Respondents Social Class profile

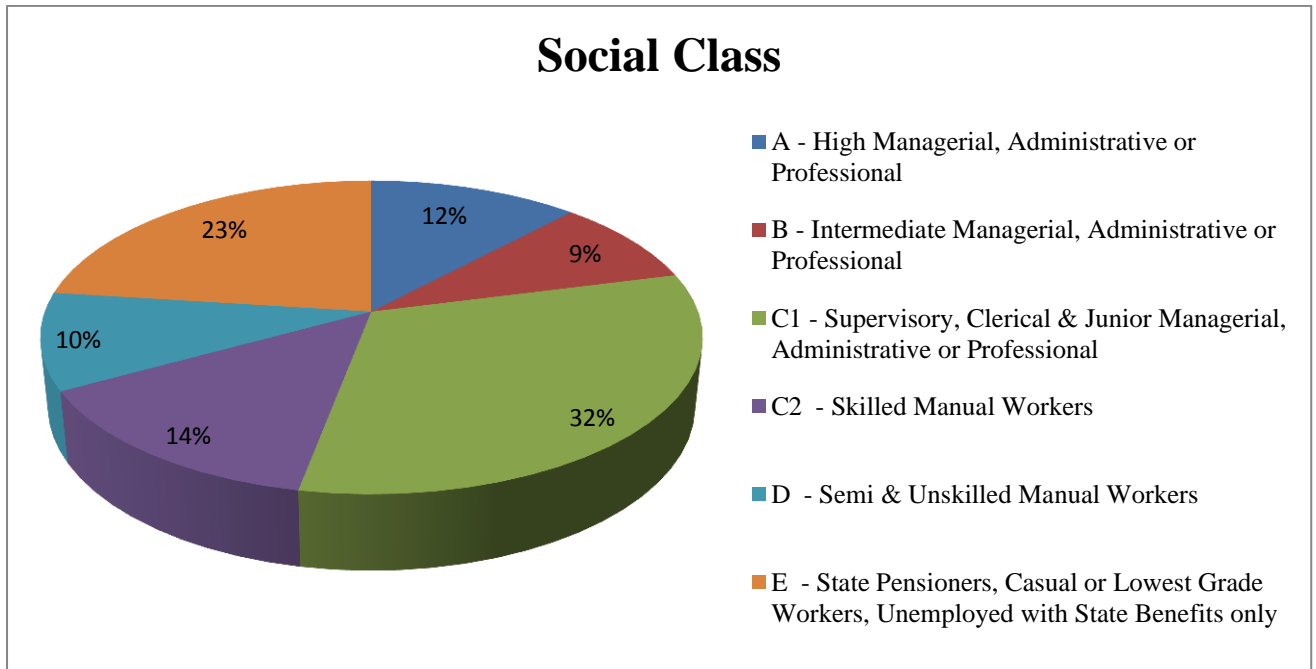


Figure 4.5 Respondents Highest Education profile

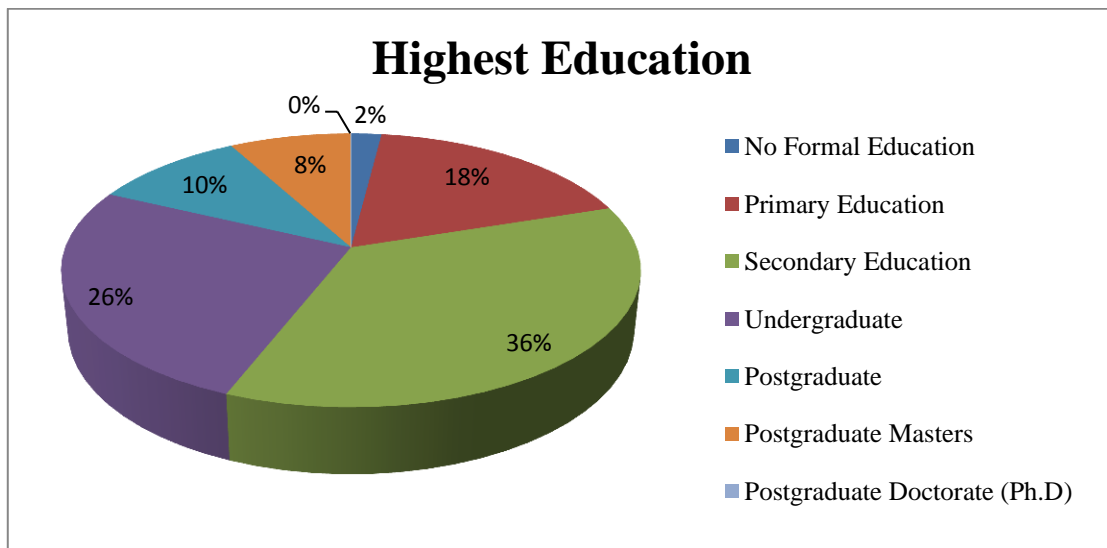


Table 4.1 Break-down of Awareness - Gender, Age, Income, Social Class and Education

		Awareness (%)	
		Yes	No
Gender	Male	22	27
	Female	17	34
Age			
	18-24	8	10
	25-44	12	29
	45-64	14	14
	65+	5	8
Household Status			
	Single	13	21
	Couple	9	7
	Single (with young children)	1	2
	Single (with young children & teenagers)	0	2
	Single (with young children, teenagers & adults)	0	1
	Full-Nest (with young children)	0	7
	Full-Nest (with young children & teenagers)	1	4
	Full-Nest (with young children, teenagers & adults)	6	8
	Empty-Nest (children left home)	9	9
	Annual Household Income (k=thousand euro)		
	<19k	9	16
	20k-39k	19	25
	40k-59k	5	11
	60k-79k	3	6
	>80k	3	3
Social Class			
	A	4	8
	B	5	4
	C1	14	18
	C2	2	12
	D	4	6
	E	10	13
Education			
	No Formal Education	0	2
	Primary Education	8	10
	Secondary Education	17	19
	Undergraduate	6	20
	Postgraduate	5	5
	Postgraduate Masters	3	5

Table 4.2 Respondents level of agreement on factors to purchase FF

Statement	Level of Agreement (percent)		
	Somewhat to Strongly Disagree	Neutral	Somewhat to Strongly Agree
<i>I care about FF</i>	25.0	19.0	56.0
<i>I trust the FF message</i>	25.0	27.0	48.0
<i>I know enough about FF products</i>	51.0	19.0	30.0
<i>FF are too expensive</i>	15.0	26.0	59.0
<i>I buy FF, even if expensive because of benefit</i>	39.0	24.0	37.0
<i>FF are poor quality</i>	56.0	35.0	9.0
<i>I like the packaging</i>	17.0	36.0	47.0
<i>I believe they can make a difference</i>	20.0	20.0	60.0
<i>I try to buy FF when shopping</i>	32.0	29.0	39.0
<i>Don't mean to, just pick up whatever I see</i>	54.0	16.0	30.0
<i>I trust the FF products available</i>	12.0	52.0	36.0
<i>I am aware of the Regulatory Bodies</i>	67.0	13.0	20.0

Table 4.3 Factors affecting/influencing consumer's purchase of FF

Statement	Affected Level (percent)		
	Somewhat to Strongly Not Affected	Neutral	Somewhat to Strongly Affected
<i>FF have become fashionable</i>	48.0	17.0	35.0
<i>Easier to find in store</i>	37.0	27.0	36.0
<i>More Options Available</i>	17.0	37.0	46.0
<i>Better Quality</i>	23.0	26.0	51.0
<i>Taste</i>	20.0	21.0	59.0
<i>Convenience</i>	27.0	33.0	40.0
<i>Price</i>	26.0	16.0	58.0
<i>Attractive Package</i>	50.0	26.0	24.0
<i>Information given on Label</i>	25.0	21.0	54.0
<i>Familiarity & Security</i>	32.0	28.0	40.0
<i>Trust FF Product</i>	14.0	45.0	41.0
<i>Healthy Option</i>	13.0	12.0	75.0
<i>Personal Health Issues</i>	14.0	17.0	69.0
<i>Recommended by Health Professional</i>	25.0	16.0	59.0

Appendix Six: Further Comments from Consumer Survey

Comments from the final question in the consumer survey respondents felt important to include:

'I always buy fresh fruit and vegetables, make my own bread and never buy ready meals. I disagree that Lucozade sport, Cadbury fruit and nut, Kellogg's snack bars or other FF have any extra nutritional value . . . they have shown to have no benefits'.

'I never specifically look for FF products, just buy what I need'.

'Some of the questions was hard to make a decision on, as FF and 'low fat' foods can be misleading in their fat content and high in salt'.

'I believe the definition of FF is unclear. I do not purchase or consume any goods with added components such as Super-milk etc. as I believe all natural foods contain sufficient nutritional requirements'.

'You are what you eat'.

Appendix Seven: Rejected Hypotheses from Consumer Survey Responses

Statistical Analysis: Hypothesis 1, 2 and 6 -18

The following are hypothesis that have been rejected as they do not satisfy conditions outlined. Additionally, assumptions made on the following analysis include:

- Random samples.
- Independent observations (each survey can only be counted once).
- Checking results have not violated the test completed.

Chi-squares results as follows:

H0: Awareness of FF term is not affected by gender

H1: Awareness of FF term is affected by gender

A chi-square test for independence (with Yates continuity correction) indicated no significant association between gender and awareness of FF term, $\chi^2(1, n=100 = .96, p=.33, \phi=.12$. Therefore, hypothesis H1 cannot be accepted as both conditions are not satisfied and no significant relationship exists.

H0: Awareness of FF term is not affected by age

H2: Awareness of FF term is affected by age

A chi-square test for independence (with Yates continuity correction) indicated no significant association between age and awareness of FF term, $\chi^2(3, n=100 = 2.76, p=2.13, \phi=.18$. Therefore, hypothesis H2 cannot be accepted as both conditions are not satisfied and no significant relationships exists.

A chi-square was also run to investigate if there was a significant relationship between gender and age against awareness of EFSA. There was no significant relationship found in both tests.

Independent-samples t-test results:

H0: There is not an association between gender and fashion of FF

H6: There is an association between gender and fashion of FF

An independent-samples t-test was conducted to compare if FF products being in fashion influences score for males and females. There was no significant difference in scores for males (M=3.39, SD=1.90) and females (M=3.63, SD=1.93); $t(98) = -.63$, $p = .53$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and price of FF

H7: There is an association between gender and price of FF

An independent-samples t-test was conducted to compare if price of FF influences score for males and females. There was no significant difference in scores for males (M=4.73, SD=1.97) and females (M=4.75, SD=1.87); $t(98) = -.27$, $p = .98$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and information on labels of FF

H8: There is an association between gender and information on labels of FF

An independent-samples t-test was conducted to compare if information on labels of FF influences score for males and females. There was no significant difference in scores for males (M=4.57, SD=1.80) and females (M=4.63, SD=1.82); $t(98) = -.16$, $p = .88$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and FF has a healthy option

H9: There is an association between gender and FF has a healthy option

An independent-samples t-test was conducted to compare if FF being a healthy option influences score for males and females. There was no significant difference in scores for

males ($M=5.20$, $SD=1.73$) and females ($M=5.55$, $SD=1.72$); $t(98) = -1.0$, $p=.32$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and personal health issue

H10: There is an association between gender and personal health issue

An independent-samples t-test was conducted to compare if purchasing FF for personal health issues score for males and females. There was no significant difference in scores for males ($M=4.98$, $SD=1.73$) and females ($M=5.33$, $SD=1.81$); $t(98) = -1.0$, $p=.32$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and recommended by health professionals

H11: There is an association between gender and recommended by health professionals

An independent-samples t-test was conducted to compare if FF recommended by health professionals influences score for males and females. There was no significant difference in scores for males ($M=4.57$, $SD=2.03$) and females ($M=4.78$, $SD=2.07$); $t(98) = -.52$, $p=.61$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: There is not an association between gender and trust of FF

H12: There is an association between gender and trust of FF

An independent-samples t-test was conducted to compare if gender is associated with trust of FF. However results showed assumptions were violated as the sig. valued was smaller than .05 therefore the equal variances not assumed figures were used and indicated that there was no significant difference in the scores for males ($M=4.12$, $SD=.99$) and females ($M=4.53$, $SD=1.24$); $t(98) = -.1.8$, $p=.07$ (two tailed). Therefore the hypothesis can be rejected as both conditions were not satisfied.

An additional number of independent-samples t-tests were conducted to compare gender with statements in question 10 of the survey (I don't care about FF; don't know enough about FF; FF are too expensive; don't believe they can make a difference and believe FF can make a difference to health) and showed no significant difference in the score for males and females. Therefore the hypothesis could be rejected in all cases as conditions were not satisfied. However, hypothesis H13 below shows that a relationship exists between awareness of FF regulatory bodies and gender.

H0: There is not an association between gender and awareness of FF regulatory bodies

H13: There is an association between gender and awareness of FF regulatory bodies

An independent-samples t-test was conducted to compare if gender is associated with awareness of FF regulatory bodies. Results indicated that there was a significant difference in the scores for males ($M=2.27$, $SD=1.68$) and females ($M=3.14$, $SD=1.89$); $t(98)= 2.44$, $p=.017$ (two tailed). The magnitude of the differences in the means (mean difference=.87, 95% CI:-1.58 to .162) had a moderate effect. Therefore the null hypothesis can be rejected as both conditions were satisfied and the relationship between gender and awareness of FF regulatory bodies exists. Results suggest that female respondents show highest awareness levels to FF regulatory bodies than males.

One-way between-groups ANOVA results:

One-way between-groups analysis of variance was conducted on age and a number of elements measured in the survey, hypothesis's can be seen below. Subjects were divided into four groups according to their age (group 1: 18-24 years or less; group 2: 25-44 years; group 3: 45-64 years; group 4-65 years and above). Results were as follows:

H0: Price of FF was not affected by respondent's age

H14: Price of FF was affected by respondent's age

In relation to H14, a one-way between-group ANOVA resulted in no significant difference between age and price. Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: FF in fashion was not affected by respondent's age

H15: FF in fashion was affected by respondent's age

In relation to H15, a one-way between-group ANOVA resulted in no significant difference between age and FF in fashion. Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: Information given on label was not affected by age

H16: Information given on label was affected by age

In relation to H16, a one-way between-group ANOVA resulted in no significant difference between age and Information given on labelling. Therefore the hypothesis can be rejected as both conditions were not satisfied. However when as in the survey, how important regulations and labelling of FF were to respondents, 76 percent said 'very important'. Thus indicating respondent's attitude towards labelling is strong but is not affected across age categories.

H0: Choosing FF as a healthy option was not affected by age

H17: Choosing FF as a healthy option was affected by age

In relation to H17, a one-way between-group ANOVA resulted in no significant difference between age and FF as a healthy option. Therefore the hypothesis can be rejected as both conditions were not satisfied.

H0: Respondents choosing FF because of personal health issue was not affected by age

H18: Respondents choosing FF because of personal health issue was affected by age

In relation to H18, a one-way between-group ANOVA resulted in no significant difference between age and personal health issue. Therefore the hypothesis can be rejected as both conditions were not satisfied.

An additional number of one-way between-groups ANOVA were conducted to compare age with statements in question 10 of the survey (don't know enough about FF; FF are too expensive; don't trust FF message and don't believe they can make a difference) and showed no significant difference in the score for males and females. Therefore the hypothesis could be rejected in all cases as conditions were not satisfied. Tests conducted on don't care about FF and awareness of regulatory bodies against age differed significantly however definitive conclusions cannot be obtained as they violated assumptions.